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VOL. XVIII NO. 5

Our Living Standards Can Go Up!

(page 5)

Paul D. Foote, Ph.D. shows us how, despite the burden of 14-million non-productive people—he calls them "parasites"—we can keep our standard of living going up.

SAM Exploring New Areas For Research

(page 12)

Your Society outlines a long-range research program to include:

- Application of scientific management to problems of modern distribution
- Utilization of electronic-computer accounting techniques for employee motivation and management controls
- Development of psychological tests for skill aptitudes and personality requirements for standards personnel

Complete Table of Contents on page 3

SOCIETY FOR ADVANCEMENT OF MANAGEMENT

The Pioneer in Management Philosophy

Remington Rand Methods News

Simplified, visible production control for maintaining schedules

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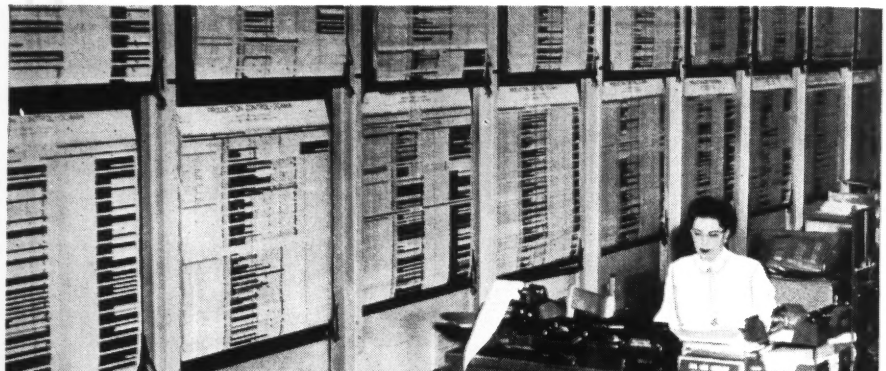

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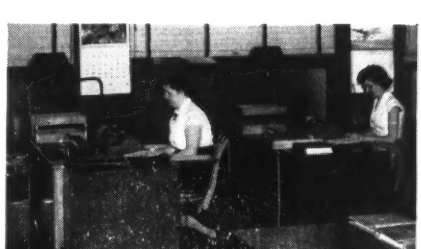

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Advanced Management

MAY 1953
VOLUME XVIII NO. 5

combined with MODERN MANAGEMENT

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ADVANCED MANAGEMENT, published monthly by Society for Advancement of Management, 411 Fifth Avenue, New York 16, N. Y., is merged with MODERN MANAGEMENT, and is successor to The Society for the Advancement of Management Journal, the Bulletin of the Taylor Society and of The Society of Industrial Engineers. Re-entered as second-class matter, December 23, 1949, at the Post Office at New York, N. Y., under the Act of March 3, 1879. Copyright, 1953, Society for Advancement of Management. Subscription rate: $8.00 per year. Single copies: 75 cents (members); $1.00 (non-members). An index to ADVANCED MANAGEMENT is published annually, and the contents are also indexed in *Industrial Arts Index* which is available at Public Libraries. Notification of address changes must be given four weeks in advance.

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THE PRESIDENT'S PAGE

Management's Responsibilities — And Ours

Edward W. Jochim
President, SAM,
1952-53

MANAGEMENT'S responsibilities or obligations are often said to be to the community, the customer, the employee and the stockholder. The order is unimportant, so I have listed them alphabetically. No one contests the fact that management owes a responsibility to each of these groups. The responsibility may vary slightly from industry to industry but it exists in all.

To the Community—This responsibility goes beyond the taxes paid by management to the local government. The community has an interest in more than the monies received. It is interested in the product, the number of employees, the pay scale, the grounds and buildings, the noise and smoke conditions and many others.

Mindful of these interests of the community, management—good management—watches them all for the community. However, good management goes farther. It encourages participation by management men in community activities. It contributes to local charities and enterprises. It takes a pride in the local community and its problems, just as the local community takes pride in a well-run company in its area.

To the Customer—This is the responsibility of a high quality product at the right price. If management does not provide the quality at the right price, backed up by the proper service and repair, it will not sell the product. There will be no product. There will be no business.

To the Employee—This responsibility is too often taken for granted. Yet, it is often neglected. It is the responsibility of a "fair day's pay" for a "fair day's work." But it means more than just the pay envelope. It means good working conditions, an understanding but not paternal management. Again, without employees there is no product. There is no business.

To the Stockholder—This is the responsibility of a fair return on invested capital. The stockholders are more than absentee owners. They are employers, too. Their interest goes beyond the quarterly dividend check. They want to know what is going on. Stockholder relations is becoming an increasingly important factor in management. The interest and support of the group cannot be lost. For, if lost, industry, as we know it in this country, would be lost, also.

The Society's research project, headed by Dr. Ralph M. Barnes, to develop a management code of ethics, although still incomplete, shows that management recognizes these responsibilities.

AN ADDED RESPONSIBILITY FOR MANAGEMENT

Let us add a fifth group to which management owes a responsibility—the technical and managerial societies.

From the former come the technical ideas that have advanced industry. Without the guidance of the vertical societies much of the technical know-how of industry today would never have been exchanged.

From the latter group, come the broad ideas of scientific management—ideas that cross industrial boundaries. The exchange of such ideas is equally important as the exchange of technical ideas.

To these societies, managements owe a definite responsibility. They must participate in and support their activities, whether vertical or horizontal.

OUR RESPONSIBILITY TO MANAGEMENT

And in return for this support from management, we, as societies, have a definite responsibility to management. We must give our "stockholders" (managements) a "fair return" (needed information) on their investment in us. I think most societies fulfill this responsibility.

The Society for Advancement of Management feels it is fulfilling its obligation to both members and all management. But we want to increase our contribution to both.

Our Society is conducting annually both spring and fall conferences for management men. The record attendance at the recent Industrial Engineering Conference indicates that management feels our conferences are beneficial to them. The ever-increasing sales of our Effort Rating Films means management both needs and wants them. Our Glossary, published only last month, is ready for its second printing. Management wants it, too. Additional publications and services will come in the future. And, as they appear, we will increase our benefit to all management.

Our Living Standards Can Go Up

By PAUL D. FOOTE

Despite the burden of 64-million "parasites," our national standard of living has continued to move ahead. Here are ways to make it move ahead faster through better management.

HIGHLIGHTS ON THE AUTHOR

Paul D. Foote, Ph.D. is presently executive vice-president, Gulf Research & Development Co., Pittsburgh, Pa., and vice-president Gulf Oil Corp. and Gulf Refining Co. He is an officer or member of numerous technical societies and the author of several technical books and numerous scientific articles.

MOST HISTORIANS have failed to grasp the significance of technology in shaping the destiny of man. Political upheavals, military conquests, governments and nationalized territories are manifestations of man's triumph over man and are always temporary in character. The achievements of technology, however, are evidence of man's triumph over nature and they are permanent mileposts in cultural advancement.

Governments may rise and fall, but the accumulated knowledge gained through science is a heritage that civilization retains forever. In fact, the really great political and military leaders throughout history owe their renown largely to the fact that they were fortunate enough to encourage, to sponsor, or to be contemporaneous with, scientific development during their period of supremacy.

Science and technology have been the motivating spirit of our nation's development since the earliest days of the Republic. President George Washington in his first annual address in 1790 stated, "There is nothing which can better deserve your patronage than the promotion of science." He advocated every encouragement for the development of inventive genius and rewards to the successful in an economy of free enterprise. This pioneering spirit has been nurtured by every great American leader from the time of Benjamin Franklin and Thomas Jefferson to the present day.

REWARD FOR GENIUS

The American system of a free economy with reward for inventive genius, and recognition that the productivity of the worker can be increased *only* through technological advance, have resulted in developing for our citizens the highest standard of living of any nation in the world. No monarch of history ever enjoyed the conveniences, the luxuries, the pleasures, the freedom, the clothing, the food, the transportation and communication facilities that are today demanded by the common laborer and are regarded by him as necessities.

Every man, woman and child in America has at his disposal 280 horsepower hours of energy per day or the equivalent of some 500 galley slaves of the Roman Empire period. The changes that have occurred in our standard of living and mode of life during the present generation are more revolutionary than the total of those that have taken place in all preceding time. This renaissance has not been effected by any political or military conqueror or by reforms in the field of sociology. It is the result of pyramiding the discoveries of the scientist and, through technology, harnessing the forces of nature.

Mechanical power and brain power have replaced the galley slave. Measured in watt-hours or calories, brain power is utterly negligible, but evidently there is no limit to the capacity of the human mind to make discoveries of profound sociological impact, when directed along the channels of research and technology.

As one indication of the standard of living, let us consider the horsepower hours per capita per day consumed by the American citizen. This has gradually increased during the past century by a factor of 2,300%, from 12 to 280 horsepower hours per capita per day. There were minor retardations from 1920 to 1940, arising partly from the business depression but chiefly because of important improvements in the utilization of power that occurred over the years and are still taking place as a result of industrial research. The present trend in power demand is definitely upward at an accelerated pace, indicating that our wants and desires are by no means satiated.

The table (on the following page) shows the energy production in horsepower hours per capita per day for several representative areas compiled from the most recent international data available (1945-1947). The energy sources embrace coal, oil, gas, water, wood and peat, and include space heating and power development without consideration of the efficiency of conversion, but the relative positions of the various countries are not materially altered on the basis of actually developed power.

In fact in the countries where technology is more highly exploited, the efficiency of conversion of energy into useful power is greater, thereby accentuating the variations shown in the table. The position of the United States in this tabular arrangement is in strik-

ing contrast with that of the less progressive countries.

ENERGY PRODUCTION IN HORSEPOWER HOURS PER CAPITA PER DAY (1945-1947)

Country	HPH
United States	238
Canada	204
United Kingdom	135
Belgium	98
Russia	42
World	39
Italy	26
India	10

It should be emphasized that a man laboring a full day at maximum effort, such as carrying a hod of brick up a ladder, develops a total of less that one horsepower hour, during which period he must be refueled with heavy meals, worth five horsepower hours, and revitalized by sleep. Probably the average citizen of today, unaided by machinery, produces less than a quarter horsepower hour of work per day. This is equivalent to one-half cents worth of electricity at domestic rates—much less at industrial rates.

As a power-generating machine, man contributes practically nothing to present economy, yet for tens of thousands of years humanity operated solely on a man-power basis. Animal and man power reached their heyday in this country as recently as 1910 and have declined ever since, but the sum of the two is of course now insignificant compared with our total power consumption.

This explains why so many people may loaf with impunity. Unless their brain power is contributing to technology or their man power is being applied through a machine developed by technology, their contribution to the economy is of no importance. The loss of one man-power day is completely compensated by turning off a 60-watt lamp bulb for a few hours.

With such an insignificant value of man power, as expressed in calories per day or watts, one may wonder how civilization has been able to survive over the millennia. Sunshine and nature have produced food for humanity with very little and often no physical effort on the part of man. While the primitive agriculturist eats several times the equivalent of the work he expends, the man with the forked stick or hoe may till the soil, cut down weeds, and permit nature more efficiently to perform the photosynthetic reactions that result in food production. From an energy standpoint, this feeble effort of man is rewarded many-fold by nature, quite analogous to the work accomplished when a mechanical machine is operated in a factory.

POPULATION GROUPS

Our total population may be divided into three groups: (1) those who are engaged in production—the actual workers; (2) those who, while not directly producing some commodity, help in its production or distribution—the service group; and (3) the parasites. One can not draw hard and fast lines between these three classifications.

There are many border-line cases and only an extensive economic study would clarify, or more likely obscure, the issue. The farmer, the factory worker, the engineer and the technical employee in the laboratory, are definitely *workers*. They help create commodities and ideas that sustain the productivity of the nation.

The service group are those engaged in trade, in transportation facilities, in military and police activity. The parasites are those who abstract from the economy, whose productivity is less than the cost to the economy of maintaining them. In this group we must place the criminals, the insane, the sick, the aged, the racketeers and our minor children.

The economic effect of the parasite class is to reduce the standard of living of everyone by a factor that is roughly, but only roughly, proportional to their fractional percentage of the population. Thus, if 40% of our population belong to the parasite group, our standard of living has been lowered by approximately one-half. Nothing can be done about this except to reduce the unnecessary parasites, such as the racketeers, criminals and insane, to the lowest possible minimum. Social reforms to this effect are costly for the economy in that more police protection is required and more personnel are necessary for the service group. The proper balance is difficult to determine.

HOW MUCH SERVICE?

It is obvious that we need a service group but the important question is: How large should be the service group compared to the producing group? For example, if we had no janitor in a factory and the skilled workers were required to handle every menial job, the production would be low. If we carry the analysis to an extreme, without any service whatever in every line of activity, the productivity would be close to zero. On the other hand, if everyone were a janitor or a policeman and there were no direct workers, the productivity again would be zero.

There is accordingly an optimum condition in balancing the ratio of service personnel to producing personnel such that maximum over-all production is secured and hence a maximum standard of living is obtained for each citizen. This is a problem for management.

Surprisingly enough it is of little importance precisely how we assume that a service worker aids a producer. A simple mathematical analysis with almost any reasonable assumption leads to a relationship that does not differ essentially from the curve of Figure 1. Note how, as the relative proportion of service workers is increased, the standard of living rapidly rises to a maximum and then declines as the service personnel become excessive. The important facts to remember are the following three conclusions:

(1) If we have relatively too many service workers, the average standard of living is lowered. We should keep the ratio of service workers to producers in reasonable balance for maximum efficiency.

(2) Regardless of the ratio of service workers to producers, the standard of living is lowered as the number of unnecessary parasites increases, so that these obviously should be reduced as far as practical.

(3) The standard of living can be raised by technology and scientific development, thereby increasing the efficiency and the productivity of the individual worker, and hence the nation, to an extent more than off-setting the effect of parasites and too many service workers.

A cursory analysis of our population of 159 million indicates 35% are workers, 25% belong to the service group and 40% are parasites. The ratio of service to producers is accordingly 0.72 to 1.0 and probably larger on a more accurate survey, suggesting we may have passed the peak of efficient productivity. Of course, the parasitic class, embracing some 64 million people, is

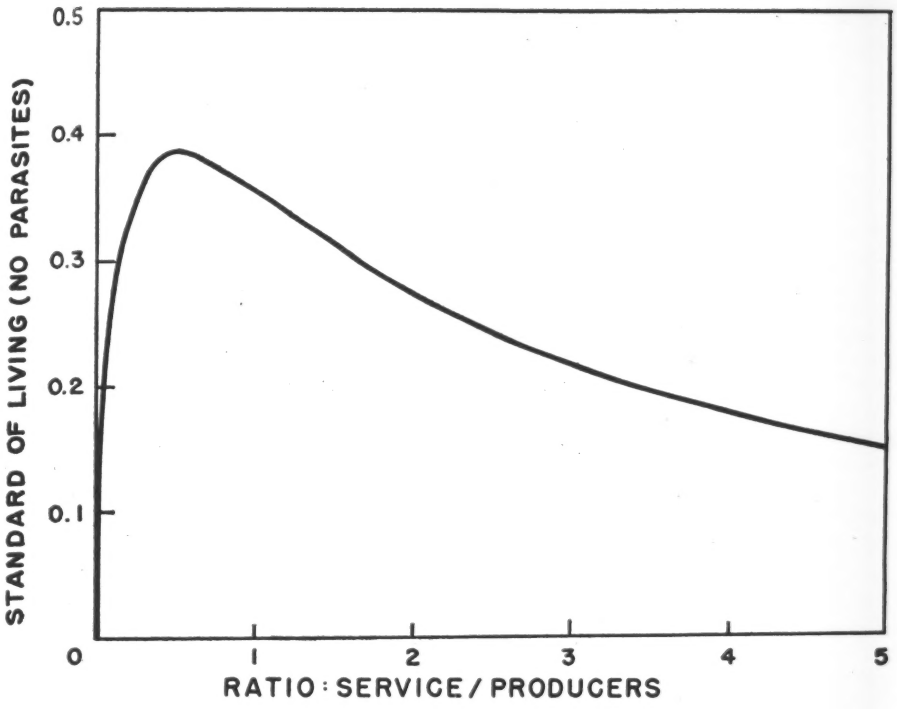

FIGURE 1

a pretty heavy load for the economy to carry.

RATIO RISING

The important point to be emphasized is that socialized government, planned economy and social reform all increase the ratio of service to producers in that they necessitate the removal of people from the producer class and greatly enlarge the service group. The trend in our country has been definitely in this direction for many years. Unemployment benefits carried to an extreme during labor controversies, feather-bedding throughout industry and tremendous expansion of government bureaucracy, are only three of countless examples. Many of the reforms add materially to the parasite class; for example, trends toward lowering the age of retirement for the receipt of pensions and benefits, and restrictions on part-time employment for those on relief or social security.

We have witnessed the lowering of the standard of living in England, in spite of technology. Geoffrey Crowther, editor of "The Economist," stated that the Leftist doctrines "exalt the social welfare of the individual even at the cost of economic efficiency" and "a nationalized industry will be an inefficient industry."

Thomas Jefferson understood these dangers when he stated, "Were we directed from Washington when to sow and when to reap, we should soon want bread." For a high standard of living, the regulating or so-called service personnel should be diverted into actual production as far as possible, and put to work.

DIFFICULTIES

It is certainly gratifying that the standard of living in the United States, through the application of new scientific knowledge, discovery and invention, has not shown much serious evidence of decline in spite of our sociological trend toward more parasites and excessive service personnel. The technologist has kept pace with bureaucracy and the social reformer, but his task is becoming more difficult every day. All manner of penalties confront efficient operation.*

The graduated income tax kills incentive, since the net return to an efficient producer is not materially greater than the net return to the less progressive, less efficient individual. The only merit the excess profits tax possesses is its attractive nomenclature, appealing to the uninformed public. It penalizes small and growing corporations, contributes to inflation, strangles efficient productive effort, and has proved almost impossible to administer.

In the labor field, efficiency has been penalized by requiring a uniform wage scale and seniority rights for promotion, regardless of capability or desire for demonstrating increased personal efficiency on the job. Big business is constantly under attack, especially if, through research and technology, it is able to lower prices for the consuming public. Witness the suit against duPont for lowering the price of cellophane, the suits against the chain stores that sell food at lower costs, and the cartel charges against the oil companies that have greatly increased our petroleum reserves through geological and geophysical discoveries abroad.

For many years, we have suffered under an inflationary spiral promoted by government expenditures and the power of the labor unions. We are forced to yield to the demands of a coal dictator whose orders not only amount to economic life or death of his immediate subjects but have, on occasions paralyzed the entire nation and caused suffering on the part of the innocent public. A like condition exists with the teamsters union that can tie up the food supply of our cities, with all forms of transportation unions, and with unions connected with the operation of public utilities such as power and light.

Depreciation of the value of the dollar, while easing the liability for meeting interest on the huge government debt, and which no doubt has been encouraged with this object in view, discredits all forms of security such as bank savings and investment life insurance, and places a heavy penalty on corporate financing. Improvement of industrial efficiency resulting from research and technological advance requires huge capital expenditures. The normal amortization funds are hopelessly inadequate for this purpose during an inflationary period. It is probably true for all industry with heavy plant investment that during the past few years actual amortization, based on present replacement costs and not recognized by current accounting procedure, has approached reported profits.

Spiraling costs place a hidden penalty on all progressive organizations, the impact of which is demonstrated

*See "The Penalty for Efficiency," *The Controller*, November, 1951.

when it becomes necessary to replace building and plant equipment. Heretofore, recessions have corrected this condition, but it now appears that the trend of rising costs will be continual. The policy of deficit financing may be a permanent government procedure for encouraging this spiral.

MANPOWER

In addition to the problems of taxation, inflation and social trends toward the welfare state, the technologist in his effort to improve the standard of living is confronted by a curious situation in the field of demography—the science concerned with birth rates, mortality data, marriages, age groups and the like.

Figure 2 (right) shows the population, marriages and births of continental U. S. from 1930 to 1951. Our population January 1, 1953, was 158,434,000. By this fall or winter, we shall have close to 160 million people in the U. S. An obvious inference is that we need not worry too much about a post-armment depression, assuming the Korean and Middle East situations are finally settled. A civilian market growing annually by the size of the combined populations of the states of Idaho, Montana, Nevada, Utah, North Dakota and South Dakota ought to be able to absorb whatever production the military will eventually turn loose.

CURVES SIMILAR

Notice that the marriage curve shows a series of peaks and valleys, and that the birth curve shows precisely the same series of inflections, except that they always occur one year later. This, of course, speaks well for American morality.

A more detailed analysis of this type of data shows some astounding facts. For example, the marriage rate declined from a so-called normal in 1926 to an all-time low in 1932. The youth of the country were so hard hit that they did not dare to embark on a marriage career. This resulted in a decline in the birth date to an all-time low in 1933. Now the children who were *not born* during this period that extended over several years obviously are *not growing up* at the present time.

By taking account of the actual births and using the accurately known mortality tables it is possible to determine with high precision the number of individuals joining the group comprising the ages 20 to 24 each year during the present decade. Because of the low birth rate during the depression, this number will decrease each year, reaching a minimum in 1956 and will then start gradually to increase again, but will not attain the 1952 figure prior to 1960.

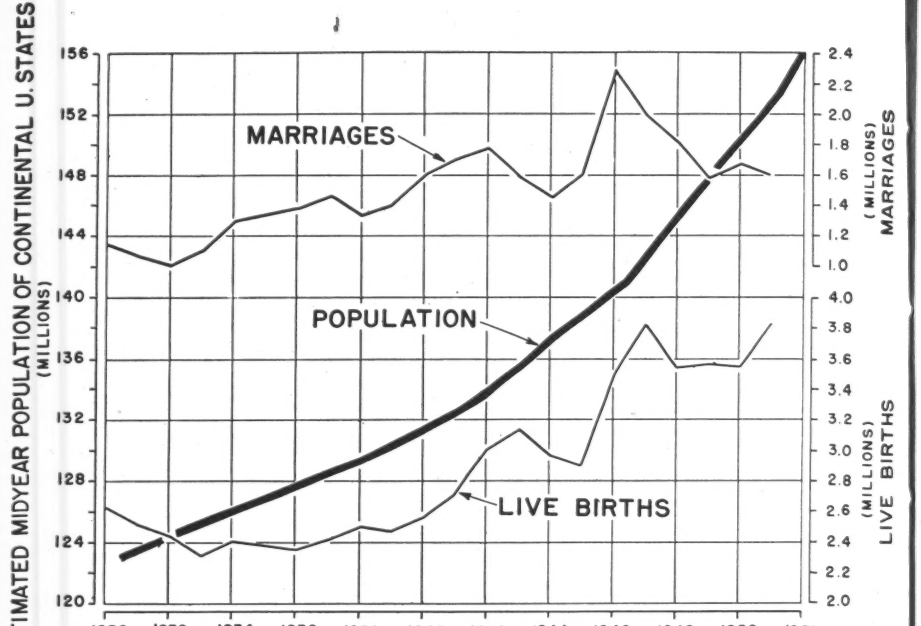

FIGURE 2

POOL IS SHRINKING

These are facts and are particularly significant. We are in a period of semi-war economy that will continue regardless of the Korean settlement. The age group just described is vitally essential to our military expansion. Also, our annual increase in the labor force comes mainly from this group. As the requirements of the defense effort increase, the pool from which industry normally draws its defense workers is rapidly shrinking.

The ultimate limit on production is the number of workers that can be hired. Hence, a decrease in the available supply cannot fail to hurt. Furthermore, industry needs technically trained managers, supervisors, engineers and scientists. This age group also furnishes the supply to our universities that train these men, and four to seven years later make them available for our modern technological economy.

If military expansion continues as a necessity for our safety, men in the older groups must be drawn upon. Such personnel will be taken from industry where they have become experienced and skilled, thereby seriously affecting our productive capacity. Any way you look at it, we are facing a shortage in new labor supply of six to eight years in duration, and a scarcity of much needed technically trained university graduates for perhaps ten or twelve years.

TECHNOLOGY

Economists look at the past and extrapolate to the future. Everyone is convinced that, with possible minor retardations, demand for products and for increased standard of living will continue indefinitely. This is where management and technology are vitally concerned. In comparison with the beginning of the present century, we are using now two and one-half times more bituminous coal, three times more copper, three and one-half times more iron ore, four times more zinc, 26 times more natural gas and 30 times more crude oil.

In 1950, it required two and one-half billion tons of material to sustain our economy. Each person on the national average, uses some 18 tons per year—7 tons of fuel; 5 tons of building material; 800 pounds of metal produced from 5,000 pounds of ore; 5,700 pounds of agricultural materials, in-

cluding 1,600 pounds of food; and finally 800 pounds of various chemical products. With less than 10% of the free world's population, and 8% of its land area, we consume half the world volume of materials.

The accelerated expansion of our industrial requirements is further emphasized by the cumulative consumption of fossil fuels. Starting with the Declaration of Independence, half of our consumption of coal has occurred since 1924, half of our consumption of oil since 1940 and half of the marketed consumption of gas has taken place since 1943. With two minor exceptions, the domestic demand for petroleum has increased each year over the preceding year since 1932.

The arithmetical average of these annual increases is 6%. We in the oil industry feel this is quite the normal course of events, but compound interest at 6% doubles every 12 years, and certainly this doubling rate of domestic demand for petroleum cannot be maintained indefinitely. The predictions of some of the economists and statisticians are much more moderate, but still staggering, as will appear immediately.

The conservative estimates of the Paley Commission indicate that we shall require in 1975—only 22 years from now—a 53% increase in all raw materials, 100% in fuels, 75% in iron and ferro-alloys, 85% in non-ferrous metals, 90% in total minerals and 133% in non-metallic minerals. For much of this material we must rely on imports.

IMPORTS NECESSARY

There are today only two metals, magnesium and molybdenum, for which we are not partially dependent on foreign supplies. Of the more than 100 important industrial minerals, one-third is satisfactorily supplied from domestic reserves; one-third is almost entirely imported; and the final third, embracing iron ore, petroleum, copper, lead, zinc, bauxite and other items, is obtained both from domestic production and import. The United States imports all of its supplies in more than 40 of the 72 strategic materials listed by the Munitions Board, and part of its supplies in all the rest.

We could have greater national self-sufficiency by using substitute materials and synthetics, and by exploitation of lean deposits, but only at a sacrifice of the present standard of living. The cost of developing lean ores increases with an exponential power of the leanness. Technology has not advanced to the point where, for example, the cost of substituting oil from coal for the importation of crude is economically sound. We are not so much concerned with dollar costs. The real cost of materials lies in the hours of human work and the amount of capital necessary to bring the materials or energy into usable form.

Capital again does not necessarily mean dollars, but rather the man-hours required to operate and to produce the steel and fabricate the materials entering into the construction of the vast enterprise that capital supports. If these man-power expenditures are allowed to rise, it means the diversion of more and more man power and capital from other productive efforts to extract the required materials, and the total national output will be smaller by the amount of goods and services that this diverted man power and capital might otherwise have produced.

PRODUCTIVITY

For many years, the man-hour productivity of the labor force as measured by certain arbitrary procedures of the economist has increased, roughly at the rate of 2% annually. From the total economy point of view, we should be more interested in the man-day or man-year productivity, since shorter hours, fringe benefits, absenteeism, vacations, strikes and suspensions of work for memorial purposes must have a profound effect on possible annual production. Labor union officials are capitalizing on this man-hour relation to assert that "they now fight for their proper share of the increased wealth they have produced and, thus, achieve a better standard of living for themselves." It is an appealing argument to politicians and to the uninformed public, but labor has played a very minor role in this development.

The productivity increase per man-hour has been due almost entirely to management, capital and technology. The brain power of the scientist and engineer has been put to work by management, with the result that, using the technological tools of invested capital, labor produces more at much less effort. The Paley Commission believes there is a serious threat that the downward trend in man-power costs arising from

CHAPTER STANDINGS
As of April 1, 1953

MEMBERSHIP		CHAPTER PERFORMANCE AWARD	
New York	418	N. New Jersey	5242
No. New Jersey	380	Philadelphia	3774
Philadelphia	336	Asheville	3400
Chicago	327	Lancaster	3181
Cincinnati	311	Boston	3164
Cleveland	297	Allentown	2375
Washington	244	Greensboro	2260
Boston	239	Milwaukee	2185
Pittsburgh	216	Hudson Valley	2175
Detroit	193	Pittsburgh	2043
Lancaster	158	Trenton	1645
Los Angeles	150	Washington	1591
Milwaukee	149	Baltimore	1350
San Francisco	116	Charlotte	1195
Dallas	107	Wilmington	1041
Indianapolis	101	New York	1035
New Brunswick	99	Detroit	1025
Asheville	95	Bridgeport	982
Hudson Valley	95	Chicago	978
Greensboro	94	Indianapolis	916
Dayton	93	Montreal	895
New Haven	90	Atlanta	861
Baltimore	86	San Francisco	840
Charlotte	78	Birmingham	835
Hartford	65	Richmond	822
Bridgeport	63	Los Angeles	782
Montreal	63	New Haven	773
Wilmington	63	New Brunswick	711
Allentown	61	Central Pa.	700
Atlanta	61	Portland	631
Binghamton	60	Cincinnati	600
Worcester	60	Greenville	580
St. Louis	58	Columbus	575
Trenton	58	Hartford	516
Columbus	56	Nashville	496
Providence	54	Providence	431
Reading	52	Worcester	390
Richmond	50	Manchester	385
Central Pa.	49	Knoxville	380
Greenville	49	Binghamton	345
Knoxville	48	Dayton	256
Birmingham	47	Wilkes-Barre	245
Louisville	47	New Orleans	170
Wilkes-Barre	45	Central N. Y.	140
Manchester	44	Cleveland	121
New Orleans	43	Kansas City	80
Western Mass.	42	Western Mass.	75
Portland	41	Dallas	70
Appleton	38	Louisville	40
Twin City	37	Reading	40
Central N. Y.	33	Twin City	31
Sacramento	32	Madison	15
Baton Rouge	28	Appleton	—
Clearing	27	Baton Rouge	—
Madison	27	Clearing	—
Nashville	26	Sacramento	—
Kansas City	23	Stamford	—
Stamford	10	St. Louis	—

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improved technology may be stopped and reversed in the near future, if indeed the reversal has not already occurred. It states that: "The problem is not that we shall suddenly wake up to find the last barrel of oil exhausted or the last pound of lead gone, and that economic activity has suddenly collapsed. The threat is the necessity of gradually devoting increasing effort to win each pound of materials from resources which are dwindling both in quantity and quality, this in spite of the combined efforts of management, capital and technology."

Some clue to the present economic situation is afforded by consideration of the per capita gross national product, as shown by the upper (broken) curve of Figure 3 for the period 1930 through 1952. A large part of the striking increase, however, has been due to dollar inflation. The lower curve (solid line) shows the same data reduced to dollars of constant purchasing power based on the Bureau of Labor Statistics Consumers Price Index, 1935-1939 equals 100.

Although the actual value of the production for the past eight years has been below that of 1944, it is still slightly increasing. Unfortunately this increase of the past three years is largely the result of the mass production of implements of war. We are becoming more efficient in turning out tanks, military planes and equipment for destruction which, while they increase the gross national product and are an achievement of management and technology, do not improve our standard of living.

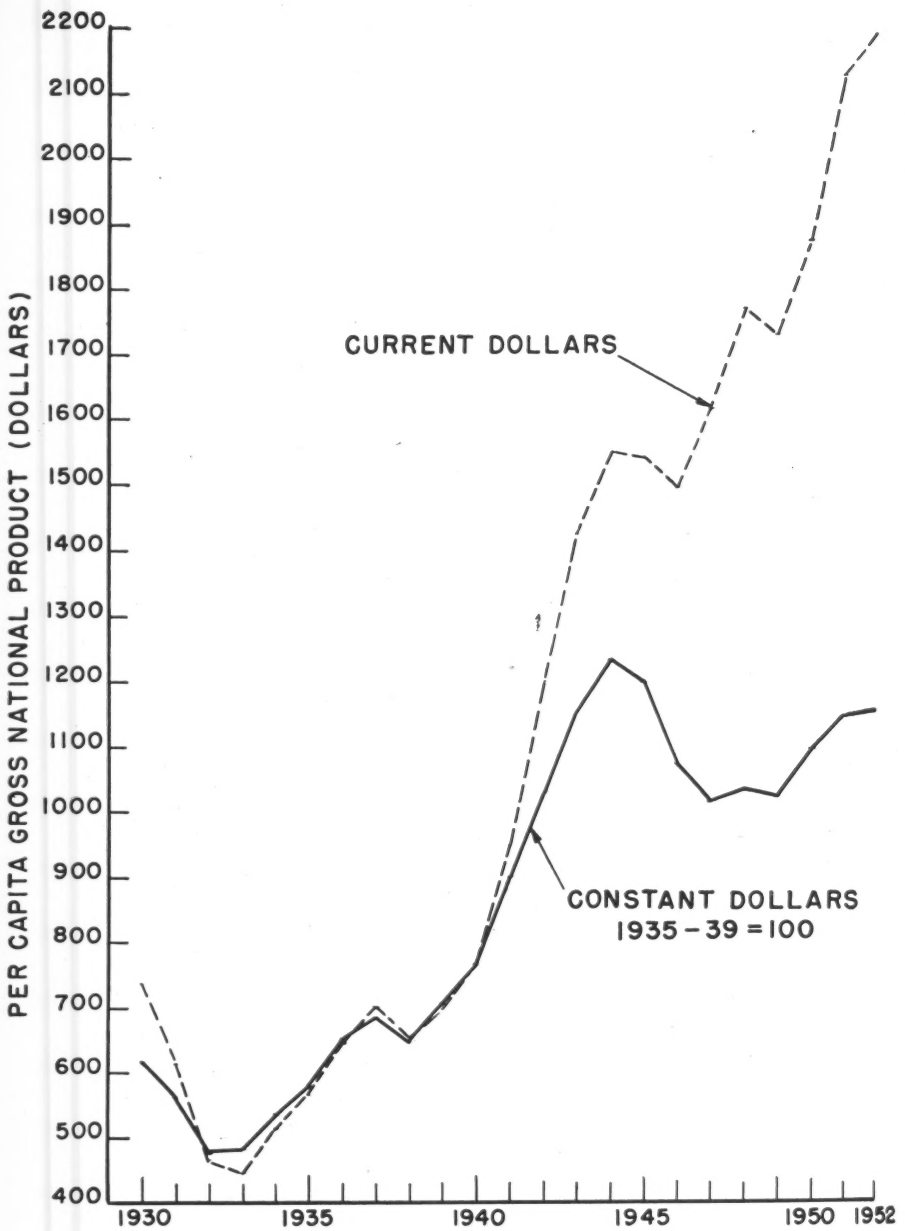

FIGURE 3

TWO APPROACHES

There are two different approaches to the national welfare problem. The standard of living is probably proportional to the per capita disposable income on a constant dollar basis. Disposable income of individuals represents the total personal income received from goods and services produced, and all transfer payments, less the personal taxes paid to federal, state and local governments. The upper curve of Figure 4 (opposite page) shows this relation for the period 1930-1952.

The lower curve shows the per capita total goods and services available for personal consumption expressed in dollars of constant value.

Both of these relations have showed a general downward trend for several years, but the current trend may be leveling off or may even possibly rise slightly during 1953. The first indicator represents the *capability* of the average citizen to purchase material and service. The second shows the *availability* for purchase of such material and service. Since both indicators have shown a decline in trend for several years, one must conclude that the standard of living in this country has decreased somewhat in spite of all the efforts of management and technology. If our good intentions for social reforms, for improving the world and for expanding military activity continue as national policy, it is possible that we witnessed in 1944 the peak of our standard of living for several years to come.

SUMMARY

With a rapidly expanding population that demands ever more production, a still higher standard of living, increasing sociological reforms and costly but desirable humanitarian improvements; with a shortage of scientists, engineers and professionally trained personnel; with natural resources, the cream of which has been skimmed; with capital threatened by socialistic trends, increasing taxation and diminishing return on

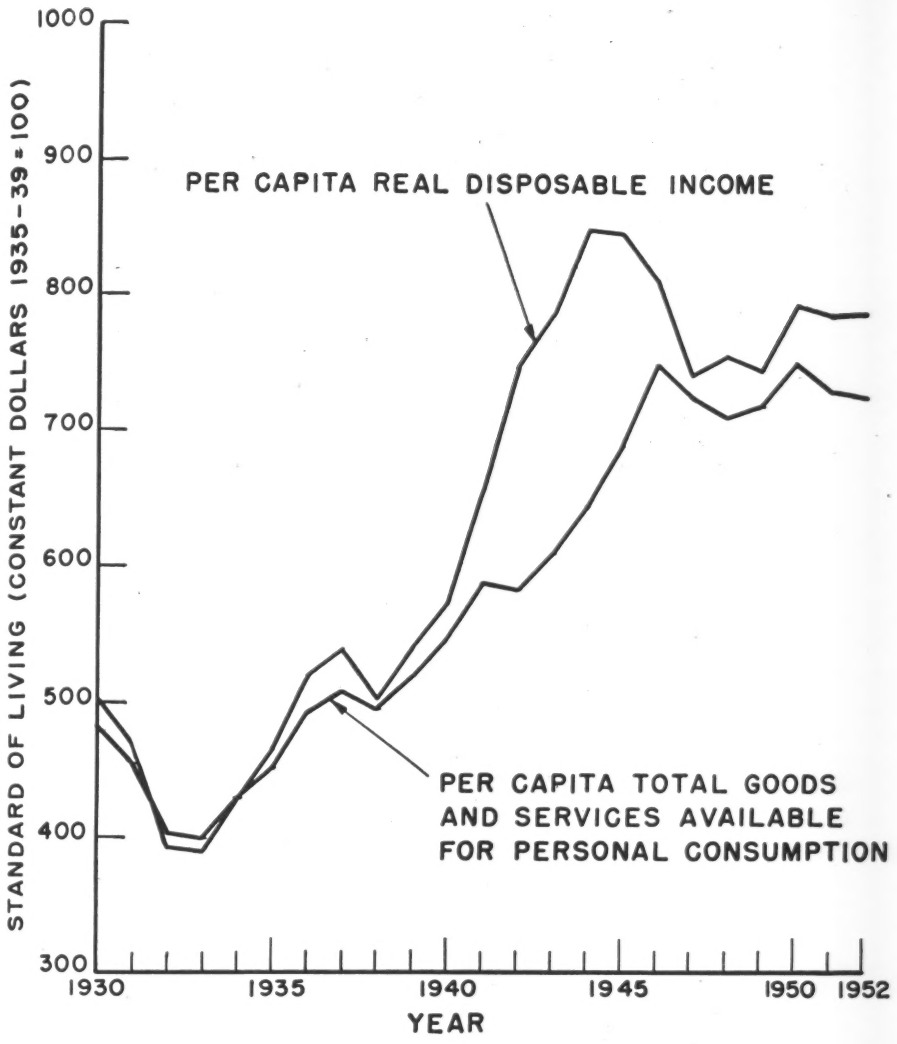

FIGURE 4

investment—management and technology are faced with a situation that is almost overwhelming.

The answer to these problems is the most active pursuit of fundamental and applied science, and the accumulation of knowledge that will lead to discoveries in the production and utilization of energy surpassing anything we know today. We are attempting to do this. While dollar expenditure is by no means a satisfactory indicator of effective research activity, it is of interest that this year represents an all-time high. Research has become a $3.5-billion dollar business in the United States, and its necessity for our economic and military survival becomes more evident every year.

While it is obviously impossible to hazard a prediction regarding the specific nature and impact of a future scientific discovery, one should emphasize that the technological revolution of the past few decades, due to management, research and engineering, has been concerned almost exclusively with the more efficient use of energy and power machinery.

A new type of industrial revolution may be on the horizon with the development of instruments for the analysis and dissemination of information. Many engineers have pointed out that, in the past industrial revolution, machines were substituted for man's muscles. In the new industrial revolution, digital and analog machines may be substituted for man's mind. According to Ridenour,* the "world of tomorrow may have as little place for the clerk as the world of today has for the galley slave." He believes there is no activity or investigation currently being supported in the field of human relations that has anything like the significance to society possible in this new type of machine industrial revolution.

Mechanical robots may eventually replace a large portion of the vast service group now handling clerical and routine operations, thereby permitting the transfer of personnel to more productive effort. The social as well as technological implications are limitless.

Never were the words of George Washington, which were said 163 years ago, more prophetic than at the present time, "Nothing can better deserve your patronage than the promotion of science." ★

*_Facing the Future's Risk_, Harper & Brothers, 1952, Chapter 4.

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SAM Exploring New Areas For Research

Modern distribution problems and possible use of electronic computers for management controls and employee motivation to be studied.

At its meeting in New York City on April 18, 1953, the SAM National Research Committee authorized preliminary planning for research in the following areas:

1. Application of principles of scientific management to problems of modern distribution.

2. Utilization of electronic-computer accounting techniques for managerial controls and employee motivation.

3. Psychological testing for skill aptitudes and personality requirements in candidates for positions having to do with establishing production expectancies of employees.

Suggested formulation of objectives and procedures for each of these projects will be presented to the National Research Committee next fall, following completion of the first phase of research planning. This phase calls for a broad survey and evaluation of each area of investigation with respect to the major management problems in need of solving, the selection of specific problems for SAM nation-wide research, the long-range and short-range goals that should be established and the most feasible procedures for reaching such goals.

Harold F. Smiddy, SAM Vice President, Management Research and Development, has assigned to each project an interim committee whose task will be to implement this initial phase of planning. The three committees will report their findings and recommendations October 30, 1953, during the SAM annual fall conference in New York City. It is expected that a formal committee for each area of research will be constituted shortly thereafter.

DISTRIBUTION

In targeting the field of distribution for systematic research, the Society recognizes the vastness of the area. Many factors will require consideration in the initial phase of planning. Definition of objectives and construction of procedures will depend on the interim committee's survey and evaluation of such distributive activities as product planning and design, warehousing, market analysis, merchandising, transportation (all forms), pricing regulations and so on. The committee will both determine the scope to be encompassed for research, and suggest the procedures and scheduling that might best be followed.

It is anticipated that the Society will periodically publish its findings and recommendations as this research progresses, thereby providing industrial management with useful information that will at all times be up to date.

The broad objective in the Society's decision to undertake research in this area is to evolve concrete means of applying to distribution the principles and methodology of scientific management on a wider and more effective basis than presently exists.

ELECTRONIC COMPUTER

The National Research Committee is interested in exploring the possibilities of modern computer devices as instruments for assisting industrial management in problems of production control, and as means of stimulating additional motivation among productive employees. The thought is projected that the "feed-back" principle (popularly linked to the field of Cybernetics) can be utilized to greater advantage by management through providing instantaneous information and guidance for decisive and production-control purposes.

The same principle is envisaged as a means of heightening the personal motivation of productive employees through providing them with immediate and complete information concerning the progress, quality, costs and significance of their work, thereby furnishing a detailed and instantaneous basis for self-evaluation and personal orientation toward the economic and social dynamics of the company and the community.

It is visualized that a research project along this general path would involve a degree of revision in current practices and procedures of accounting.

An interim committee has been assigned to explore this project and to report an evaluation and recommendations at the next annual fall conference in New York City. Considerations will include such factors as drawing up the proper accounting procedures, selecting the pilot plant for installation of the experiment and determination of electronic and physical equipment to be used.

PSYCHOLOGICAL TESTING

The importance of the "right person for the right job" has been recognized for many years throughout industrial management. The basic principle underlying this objective has perhaps its deepest and most sensitive pertinence in those situations which require that one person establish the production expectancy of other persons.

The National Research Committee has authorized an exploratory approach to the problem of identifying and measuring the essential requirements of skill and personality for work involving the standardization of productive efforts. A tentative procedure has been drawn up for research of this nature. It involves several thousand subjects employed in numerous types of industry throughout the country. It is designed to detect the criteria of successful performance in work of this kind and to determine critically, in light of these criteria, the essential qualifications of the performer.

It is anticipated that the immediate outcome of this research will be a battery of psychological tests which will be valid and reliable for selecting trainable applicants. Additional outcomes are visualized, such as an appropriate training procedure and a battery of proficiency tests useful for certification in the occupational areas involved.

The interim committee studying this project will make definite proposals to the National Research Committee during the next annual fall conference. The proposals will be based on such considerations as probable cost of the project, coordination of the researchers and control mechanisms in the handling of the completed product of research.

Detroit Chapter Sponsors 5th Management Clinic

"IMPROVE Today for Profit Tomorrow" will be the theme of the Detroit Chapter's 5th annual Management Clinic, to be held at the Rackham Building, Detroit, May 20 and 21. John S. Casey, chapter secretary, is handling reservations for the clinic.

The Management Clinic has become the largest project of the chapter's yearly program. The clinic will be conducted as a two-part program. One is designed for personnel people, the other for industrial engineers. However, the first speaker on both Wednesday and Thursday mornings will address joint sessions of the clinic.

Wednesday morning Robert N. McMurry, president, Robert N. McMurry & Co., Chicago, will speak on "Must Problems for Management." At the Thursday morning session, Ralph Presgrave, vice-president, Knitting Mills, Ltd., Toronto, and co-chairman of the Society's 8th annual Industrial Engineering Conference, will outline "A Forward Look at Work Study."

Other clinic speakers and subjects are:

Personnel Program: May 20

David A. Wolff, attorney and labor arbitrator, Ann Arbor, Mich., "Management-Labor Arbitration, Its Use and Abuse"; Nat Weinberg, director of research and engineering, UAW-CIO, Detroit, "Union Objectives — Today and Tomorrow"; Dr. Burleigh B. Gardner, executive director, Social Research, Inc., and professor of Industrial Relations, University of Chicago, "Realistic Management Development."

Industrial Engineering: May 20

Walter Eitel, supervisor of tool design, A. C. Spark Plug Division, General Motors Corp., Flint, Mich., "Planning A Better Methods Program"; Dr. Adam Abruzzi, assistant professor of industrial engineering, Stevens Institute of Technology, "Problems of Inference in Work Measurement"; Alex W. Rathe, professor of administrative engineering, New York University, "Planning Is Trouble Insurance."

MONTREAL CHAPTER OFFICERS gathered for dinner (and a little fun at the expense of Harold Engstrom and Dr. Flynn) following the chapter's 4th annual Industrial Engineering Conference held March 20. Left to right are: J. G. Campbell, past president; Harold Engstrom, national treasurer; D. R. MacLennan, conference chairman; W. Royel, secretary; Pig, (no office); Dr. Vincent A. Flynn, national research director; G. B. Bailey, conference speaker; T. J. Metayer, past president; W. R. Borland, vice president; and W. P. Heelan, conference chairman.

Personnel Program: May 21

Dale Yoder, director, Industrial Relations Center, University of Minnesota, "Our Personnel Policies—Where Are They Taking Us"; Leonard E. Himler, M.D., Mercywood Hospital, Ann Arbor, Mich., "Supervisors, Psychiatry, and Human Relations"; Robert Kahn, Survey Research Center, University of Michigan, "What Makes for Productivity."

Industrial Engineering: May 21

Gerald B. Bailey, vice-president J. D. Woods & Gordon, Inc., Toronto, "Progress in Work Measurement Through the Application of Predetermined Motion Times"; John T. Diebold, management consultant, Weehawken, N. J., "Events Leading Up to the Automatic Factory"; James M. Apple, associate professor of Industrial Engineering, Michigan State College, "Better Industrial Engineers Through Industry—College Cooperation."

Southeastern Division Holds First Annual Conference

THE first annual Southeastern Management Conference was held on May 7 and 8 at the Grove Park Inn, Asheville, N. C. The conference was sponsored jointly by SAM chapters in Asheville, Atlanta, Birmingham, Charlotte, Greensboro, Greenville, Knoxville and Nashville.

Theme of the two-day conference was "Problems of an Expanding Industrial Economy," and emphasis was on better human relations and improvement of productivity.

A round table, titled "Problems of an Expanding Economy" closed the two-day conference. Dean Thomas Carroll, School of Business Administration, University of North Carolina, was the moderator. Panel members were from the Young Presidents Organization, Inc.

Other speakers at the conference were:

Alvin Wingfield, Jr., manager, Royal Typewriter Company, Charlotte, N. C., "The General Economic Outlook"; Flem Winders, assistant to president, Tennessee Eastman Co., "Human Relations"; Ben Graham, Standard Register Company, "Paperwork Simplification"; Frank Middleswart, supervisor of management engineering, E. I. du Pont de Nemours, "Office Methods and Measurement."

Rev. Clifford H. Peace, R. J. Reynolds Tobacco Company, "The Pastor-Counselor In Industry"; Erle Cocke, Jr., assistant to president, Delta Air Lines, Inc., "Expansion of Transportation Facilities in the South; M. S. Wigginton, vice-president and director, General Shoe Corporation, "Marketing."

Significance of Costs and Cost Control*

By ALEX W. RATHE

A well-planned and executed cost reduction program is the only way to cut your costs. It's a job for both the engineer and the economist.

IN THE ever-changing panorama of supply and demand, of income and expense, of prices and profits, cost is the eternal variable. Whenever we talk of "money" we really deal with "cost." Every money figure always represents a "price"; and every "price" is always the sum of the cost of the goods (or services) involved, plus the profit (or loss) made in their production and distribution. This holds true for a five-cent coke or for a $350-million turnpike.

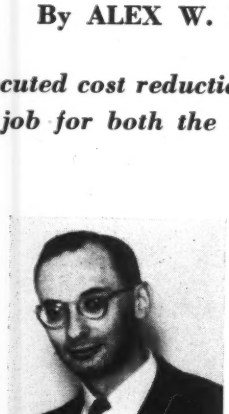
Costs are the key to sales prices. The larger costs are, the higher prices must go. Costs influence sales volume at the same time. Generally an advance in price spells a potential loss in sales. Conversely, a reduction in prices shows itself usually as the surest road to larger volume.

Costs are also the key to profits because profits are what is left of the sales price after deducting all costs. If profits are too low, business has moved dangerously close to the brink of trouble. If profits are too high, the effect is likewise undesirable. Sustained profits at an excessive level will surely attract competition, rouse the union's wrath and bring about justified customer resentment.

Since costs are such a sensitive and influential factor in the economy, they require careful control. And the best way to control costs is through the design of a cost reduction program. This is a systematically developed plan which aims at decreasing cost wherever possible so that prices move into reach of ever more people; it is based on a careful collection and appraisal of previous cost and other data.

THE AMERICAN WAY

Viewed in a philosophical vein, it is no understatement to say that cost reduction is one of the many expressions of our American way of life. Its result to-date shows that we in the United States, comprising but some 6% of the world's population, have more than one-third of the world's railroad routes, almost half of all radios, more than 50% of the telephones and over three-quarters of all the automobiles.



HIGHLIGHTS ON THE AUTHOR

Alex W. Rathe, Associate Professor of Management Engineering at New York University, is also a consulting engineer. He is a member of: ASME, AMA, the American Society for Engineering Education, AIIE, the N.J. Society of Professional Engineers and SAM. His last ADVANCED MANAGEMENT article introduced the concept of "Management Control."

These figures show clearly that cost reduction is not an endeavor to which we have turned just recently. On the contrary, cutting costs has long been a primary objective of enlightened business management. But until not so long ago, cost reduction was often considered as an area by and of itself, as a self-contained package, as a compartment sealed off near-airtight from other activities.

Such an attitude places unnecessary obstacles into the path of effective action. Today, we see cost reduction as the last and crucial step in cost control, as its very objective; more significantly, we recognize cost reduction and cost control as an integral part of the overall managerial sphere, as one of each executive's top responsibilities.

Every decision which management makes, every action it takes has an immediate impact on costs because it invariably deals either with men, with materials, or with machines, etc., each of which has its own price. The degree of the success in controlling cost is a measure of the fulfillment of management's economic obligations.

The fundamental idea underlying the control of costs has long been known to engineers and used by them in many ways. It is the same on which any control action is based. When we talk about "controlling" something—an automobile, the U. S. currency, prices, costs, or what not—we have to realize, however, that we actually describe with this one term an assortment of rather different actions. "Control" can signify "handle," "oversee," "adjust," "regulate," "guide," "correct," "prescribe"; and there are still many other meanings.

All these are "controlling" moves in one way or another; they all have one thing in common: they are—or should be—taken on the basis of a clear picture of the existing situation. But they differ in the type of action which follows.

The first problem in control is to ascertain what the situation is, to find out what is and has been taking place. Such a review of present and past happenings involves two steps:

1. Get the facts.
2. Examine their meaning.

These two review steps must always

*Adapted from a paper presented before the Third Annual Conference of The Technical Societies Council of New Jersey, in Newark, on March 30, 1953.

be taken. They are always the same even when the subsequent action differs in character, scope and other aspects as is the case in different approaches to control.

Applied to an engineering problem, say excessive oil consumption of a boiler, control starts with the first review task, "get the facts." This demands the collection of figures on fuel use, power output, etc. The second review step, "examine their meaning," weighs all facts and circumstances with a bearing on the situation on which we have just gathered all significant information; it might include an evaluation of these data in the light of existing weather conditions, a comparison with steam consumption in other plants and many other items. The result of this review determines what action should ensue; perhaps the burners have to be changed; perhaps pipes require better insulation; or whatever the case may be.

FIRST A REVIEW

Transplanted into the cost field, cost control means first a thorough review of the cost picture. We have to:

1. "Get the facts" through . . . cost finding; here we ascertain how much money was spent and how this amount differs from any target figure that might have been set ahead of time; and we have to . . .

2. "Examine their meaning" through . . . cost appraisal: in this second review task, our aim is to determine the reason why actual costs did not meet their preset goal; we have to work out suggestions as to what should be done so that costs will be able to perform better in the future; these recommendations are what is usually called a "Cost Reduction Program."

The acid test of this review work comes through the action of the operating managers when they put the proposals of the cost reduction program into effect. That action—and only such action—transforms paper profits into real dollar savings.

Differentiation between the two review steps on the one hand and between review and action on the other is a downright practical necessity because in each of them a different member of the management team plays the dominant role. Cost finding is the accountant's domain; appraisal moves the engineer to the center of the stage; and the resultant managerial action places the operating executives (among whom we find again quite a number of engineers) into the spotlight.

Every one of these tasks requires joint, cooperative efforts. These do not only involve the three leading figures just mentioned. There is an imposing cast of supporting players, namely just about everybody within the management of a firm.

In this discussion, we shall stress particularly matters of immediate interest to the engineer's work and potentialities. This means emphasis on cost appraisal, the second review phase.

COST FINDING

The old adage that there is nothing in life that is free, holds equally true in the world of business. Whatever is done or happens, costs money. And business often runs up a bill when nothing whatsoever takes place. From the point of view of cost control, this means that costs are not only incurred at every moment but in every place. It indicates likewise that we must get hold of these cost figures as they arise.

This is primarily the task of the cost accountant. He collects and records figures which express operating results in terms of cost. He uses general accounting principles and techniques for the specific purpose of keeping track of costs whenever and wherever they occur. This may be on the factory floor during the production process; in selling, advertising and delivery; or in any other spot like research and development work, in general administration, etc.

Our current economic picture has introduced another type of expenditure which, although not classified as "cost," exercises ever more pungent influence upon managerial decisions because of its rising magnitude: *taxes*. For the purposes of this brief discussion, the difference of the character of income taxes as a deduction from income rather than as a cost element is not important. Whatever their classification, when taxes grow, profits will fall if sales prices are held constant or prices will zoom if profits remain stable.

The cost accountant's work translates the *effect* of operations into terms of cost. This provides a firm basis for their appraisal in the second phase of the review of costs.

COST APPRAISAL

Here we aim at establishing the *cause* for costs being what they are. This is in reality a triple assignment because it comprises:

1. *analysis of the figures gathered in the cost finding stages,*

2. *interpretation of their significance under the existing circumstances, and*

3. *development of recommendations of how to do better in the future, i.e. the design of the cost reduction program.*

Analysis. This is a typical engineering approach to a complex problem. When a task is too large to permit a ready solution, it is cut into pieces and each is taken care of separately. This provides us with the over-all solution as long as we keep in mind during the carving process that we have to be able to put the pieces together again into one coherent entity.

One of the prime analytical tools to conquer a large mass of data is to select from them those which are especially significant. Every practitioner knows that the effectiveness of control increases in inverse proportion to the number of data presented. Or put another way, the trick of keeping figures attractive is to reduce them in the right places.

Here we can obtain weighty assistance from the statisticians. Some of their "concepts relating to central tendency" have already invaded the cost finding stage since cost accounting systems usually yield average costs per lot, or per period, department or process.

However, by its very nature, any average states general conclusions. It may thus misstate specific situations and cause the difficulties which made the boy drown in a creek with an average depth of only two feet. Since the average is the number around which the values cluster, we might also determine the extent to which they scatter. This is the statistical corollary of "dispersion." Greater application of techniques measuring dispersion would materially strengthen the engineer's tool kit in his cost appraisal work.

The simplest method is the computation of a "range." Knowing that the average cost of assembling, say, a watch is $28 is of course very helpful. But finding that the range is from $20 to $35 provides additional clues on the basis of which the engineer will be able

to push much farther in his attempt to discover the reasons for the existing cost situation.

When we have filtered out the most significant data, we are ready for the next part of our cost analysis, that of comparing the information with figures which can serve as target measures. Any value is set out more readily if gaged against some base. Typical benchmarks for comparisons in cost work are:

- results last month or last year
- cumulative results this year or last year
- previous high or low points
- percentage change
- other departments, plants or offices of the same company
- other firms
- other regions
- other industries.

The best yardstick for actual operating results is a collection of standards which express what costs should have been under specified circumstances.

A special and widely used method of comparison is the calculation of ratios. If two plants intend to compare their respective wage expenditures, a mere matching up of actual payroll dollars in each of the two companies tells little because different working hours, different numbers of employees, different wage payment plans and methods may be involved. A more immediately meaningful answer results if these figures are reduced to one average hourly wage rate for each factory.

Ratios thus make comparisons easier because they highlight relationships. They indicate probabilities. They suggest weakness or strength. They focus attention upon the target—a golf score in the eighties is significant only as it is related to the course par of 69.

These useful characteristics of ratios have led to their frequent application a long time ago. A prime example is the wide-spread use of ratio analysis of financial statements. But ratios are as helpful as they are treacherous because they tell only a part of the story.

For example, the announcement that steel production in the United States is four times the size of that of Russia sounds reassuring. This statement, taken by itself, is however misleading until it is supplemented by the fact that the Soviets have allocated more than double the amount of steel to military purposes than we.

To get the full story, we have to strengthen analysis by synthesis.

Interpretation. Here we integrate the small pieces back together again into a larger picture which we deliberately took apart for the purpose of examining its parts. This fusion of components is a prerequisite to an evaluation of the existing cost situation because only in an entity can we see all the relationships which interweave its segments. And spotting these interconnections is one of the cost sleuth's key objectives since their discovery often suggests almost automatically what remedial action is called for.

To illustrate this point, let us assume that analysis of the cost data, which the accountant has compiled, shows that selling expense is on the rise. Our task is to interpret this fact in terms of whether that is good, bad or indifferent.

We cannot begin to take a stand until an examination of the relationships involved gives this fact real meaning. We require answers to a host of questions, such as:

- what was the total sales volume during this period in comparison with others when selling expense was lower?
- did the factory deliver the goods on schedule or was the sales force called upon to exert extra efforts in an attempt to overcome the unfavorable reaction to the late shipments?
- is the new design working out all right?
- were performance tests after installation as successful as those made in the laboratory?
- was quality up to standard or did defects necessitate a number of special service trips to adjust customer complaints?
- what was the effect of the new advertising campaign?
- when did the competition announce its new line?
- etc.

These and many other related problems must be considered when we search for the real meaning of the increase in selling expense. And when we have obtained satisfactory answers to these questions, we can then properly interpret the true significance of this cost figure.

PROPER PERSPECTIVE

In this task of evaluating the existing cost situation, it is paramount to survey the picture from a business-wide vantage point. We must see events in their proper perspective. It is not only important to know what happened to each part. It is even more imperative to recognize what contribution this meant to the larger picture, the company as a whole.

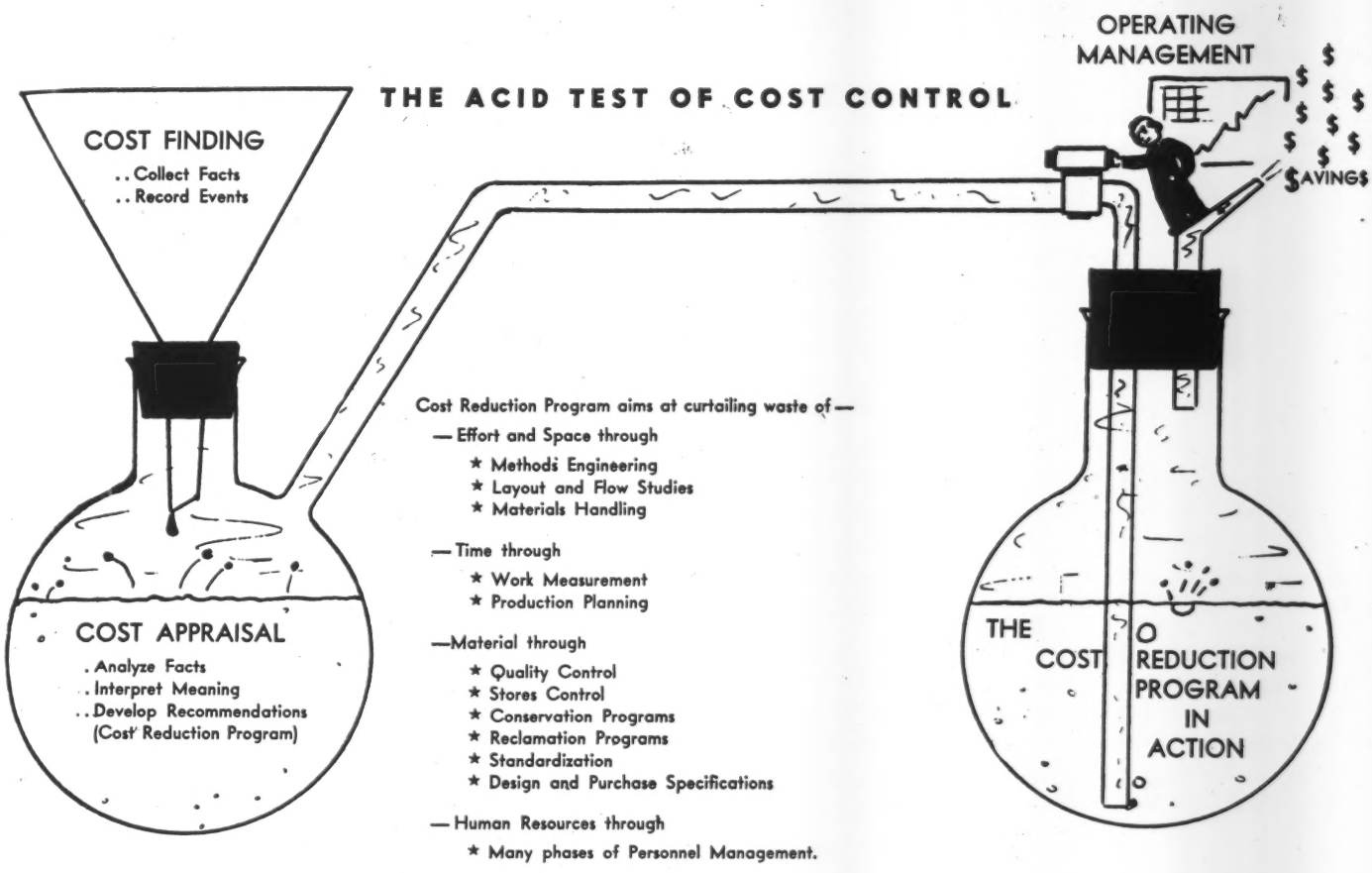
This is a difficult task since it is a tendency of many people to look at the world in the light of their own activities only. Most of us are likely to overemphasize those aspects which are our daily concern and to be less sensitive—at times, almost blind—to others.

If *interpretation* is to be successful, it must be done against the total situation. Our view ought to be like that gained from a watch tower which overlooks the entire area of operations rather than merely one of its sectors to the exclusion of others. A good cost control panel—or any control panel for that matter—has to present an over-all panorama on which each component registers as "good" or "bad" on the strength of its contribution to the entire organization.

It is therefore desirable for the engineer to consult economists and other experts for an authoritative interpretation of non-technical events which may influence the cost picture. This then is still another forceful reminder that cost control is in reality a part of something much bigger; it is an integral segment of the task of reviewing, in all phases of the business, how well actual operations followed the plans which were made for them in advance and what consequences their behavior has upon the future.

Recommendations. When we see the full impact of the cost figures in the over-all picture, we are ready to formulate proposals of how the future cost situation might be improved by the experiences just weighed. These suggestions comprise the cost reduction program. It expresses what can be done under the existing circumstances to improve the cost aspects.

A good cost reduction program is charged with fulfilling a number of difficult specifications. None, however, is more important than the stipulation that



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by Alex W. Rathe

FIGURE 1—Cost Reduction.

it must be practical because nothing is more destructive of the operating officials' confidence in such recommendations than a theoretic approach which sounds good on paper yet is unworkable.

In the design of the cost reduction program, the engineer is on his own much of the time. But he has at his disposal a wide array of proved engineering tools and techniques, all of which are aimed at one overriding target—the curtailment of waste. But more and more do professional brethren-in-arms from other fields join the engineer in this task. One of the key problems before the executives today is to achieve the proper blend of these various helpmaids from the natural and living sciences, in the field of cost control no less than in other sectors of managerial endeavor.

Figure 1 sketches some of the more influential techniques, with emphasis on the engineering repertoire.

The first area of attack aims at curtailing waste of effort and space:

Methods Engineering in its never-ending search for the "best way" is in the forefront. Through motion study, appropriate design of tools, equipment, jigs, fixtures and machinery, as well as through proper safety considerations, the Methods Engineer attempts to make operations more productive. His field is not anymore restricted to manufacturing and inspection work; under the name of "Systems Analyst" or with a number of other appellations, methods engineering principles perform equally well in clerical activities and have already made a fine start in selling and other work.

Layout and Flow Studies follow closely. They might perhaps be regarded as an expansion of the methods engineering techniques from one individual operation or workplace to entire plant or office departments.

A third companion in this column is the entire field of *Materials Handling*. It comprises a veritable complex of predominantly engineering problems which has as yet been but scantily exploited despite the excellent progress in recent years. It has been calculated that on the average one-fifth of all factory cost is caused by the handling of materials which adds no value whatsoever to the completed product. Such a sum is indeed a worthwhile target to go after.

The second enemy of fuller productivity is waste of time. Its major combatants are:

Work Measurement, which puts a time tag on the "best way" through production standards, output rates, fatigue allowances, incentives and other means.

Continued on page 32

Scientific Management Abroad

By HAROLD B. MAYNARD

Our general program of sending management know-how abroad has been effective. Now we must export the optimistic viewpoint and philosophy so uniquely American to stop Communism.

SEVERAL YEARS ago, Wendell Wilkie said: "You and I will never know a calm moment in our times." It is important that we should recognize how true this statement is. There is no use longing for a period of peace and quiet when we can just sit back and relax. We are at war. We have a fight on our hands, our task is to see that when the history of our times is written, it will be said that we fought a good fight.

When I say we are at war, I am not referring to Korea. The war is much closer to us than that. It is a war of ideas and the fighting is a battle for men's minds. Two philosophies are struggling for global supremacy. One whose foundations are largely religious believes in the importance of the individual. The other which is anti-religious believes in the importance of the state. One promises little and gives much. The other promises everything and gives little. One means freedom—the other slavery.

There is no question in the minds of American people which philosophy is preferable. It is hard for us to understand why anyone could want anything other than the freedom which we hold so dear. Yet, last year one hundred million people in Asia, the Middle East and Africa turned Communist. In the elections in Italy, May, 1951, the Communists made significant gains. We have made progress in our policy to contain Communism in Western Europe, to be sure, but the world is a big place and Communist supporters who believe as thoroughly in their system as we do in ours are incessantly at work. At the moment, judging by the gains they are making, they are fighting more effectively than we are. We shall have to do a good deal more than we are doing now before the tide of the battle will turn.

HIGHLIGHTS ON THE AUTHOR

Harold B. Maynard is president and founder of Methods Engineering Council, Pittsburgh, Pa., counselors in almost every phase of business and industry. Maynard is credited with originating the phrase "methods engineering." He is also a past president of SAM (1946-47), president of CIOS and a director of the Association of Consulting Engineers.

KEY TO PRODUCTION

Now what does all this have to do with scientific management abroad? The connection actually is very direct. We have been sending management know-how abroad ever since the end of World War II as one of our principal weapons in the battle for men's minds. It was clearly evident in 1946 and 1947 that unless the economies of the war ravaged countries could be restored so that life once again became worth living, there was every possibility that the people of those countries would turn to Communism. Production of great quantities of goods and services was needed to raise living standards and to lessen the tensions which always exist between the "have's" and the "have not's." Scientific management was seen to be the key to production.

Even before the Marshall Plan came into existence, the export of management know-how was going on. The Society for the Advancement of Management through its support of the National Management Council was one of the pioneers in this effort. It sent its publications to management societies abroad who, at the war's end, were starved for news for recent developments. It supported international congresses and conferences of all sorts and shared freely of its management know-how. With other American management groups doing the same, the post-war flow of management know-how abroad began.

It was, however, a pitifully small stream at first. Management groups are seldom flush with funds, and there is a limit to what they can finance themselves. Therefore, when the Marshall Plan was evolved with objectives which in part closely paralleled our own, a real opportunity presented itself to spread scientific management knowledge on a greater scale than before.

There is a tendency on the part of specialized groups to resent any encroachments on what they regard as their field. They are likely to be jealous of "outsiders" even when they want to help. If the outsider is a well-heeled government, the resistance is likely to be particularly strong.

COOPERATIVE

I believe that our American management societies have handled themselves unusually well in a situation of this kind. They have done everything that they could to be helpful to ECA and later MSA. Through the National Management Council, they have welcomed and guided visiting teams from abroad. They have sent management experts overseas to conduct training seminars in various countries, and they have initiated all sorts of projects for ECA and

MSA which have resulted in greater productivity through better management abroad.

Furthermore, while being helpful, they have not permitted government funds to draw them into a position of dependency or to weaken their initiative. This year, a management school has opened at Turin, Italy. It is a non-governmental venture and is financed by Italian industry. The National Management Council helped to develop the idea for this school as the result of a conference of American and foreign management educators which it held at its own expense last June. Its overseas vice-president has worked with the Italians ever since to make the plans a practical reality. Thus, while working with the government, NMC has been on the alert to encourage private initiative whenever and wherever it could.

The machinery which has been set up to improve management abroad is rather amazing. On the non-governmental side, there are national management groups in many countries which are similar to our own National Management Council. Most of these groups are members of and are loosely guided by CIOS, the International Committee on Scientific Management. CIOS has 20 member countries at the present time. It holds impressive international management congresses every three years at which management people from all over the free world come together to exchange ideas. The next Congress will be held in São Paulo, Brazil, in February, 1954. Its discussions will be aimed at the problems of top management and will unquestionably have a considerable impact on management practices around the world.

THE HARD CORE

CIOS, the national committees in the member countries and the management societies which make up the national groups are, in my opinion, the hard core of the management movement. They are for the most part deplorably under-financed. They cannot afford to undertake projects which involve expenditures of any magnitude. Nevertheless, they are made up of people with the best management minds in existence, people who work for the groups to which they belong because they believe in the importance of management's role in today's world. These groups are relatively unaffected by changes in political or economic winds, and they can be counted upon to endure as long as the need for the advancement of management exists.

On the governmental side, the structure is more complex. The Mutual Security Agency—formerly the ECA—has a Technical Assistance Division whose major objective is the raising of productivity in most Western European countries. The headquarters of this group are located in Washington, but it has a far-flung organization abroad. Heading up the overseas activities is the SRE—Special Representative in Europe—for the Technical Assistance Division. This, in reality, is an office with a sizeable staff and a very capable administrator heading it. Its major function is to give guidance and direction on technical assistance matters to the MSA missions or local offices which are set up in each European country.

OEEC GROUP

In addition to this set-up, a number of the European countries are banded together in a regional group called the Organization for European Economic Cooperation, or OEEC. This group initiates or approves projects designed to increase productivity. It requests funds as needed from MSA and sees that equivalent funds in the country involved are deposited in the now-famous counterpart fund.

In addition to these agencies, each country has a productivity center. The centers are financed by government funds. They initiate and finance productivity-increasing activities of all sorts and spend a good deal of effort on various kinds of training projects.

There are also a number of private individuals and groups who are interested in scientific management in Europe. Each country has its quota of management consultants, university professors and others who are professionally connected with the management movement. They, also, have various associations and groups, both national and international, to which they belong. The Ninth International Management Congress which was held in Brussels in 1951, for example, brought together professors from various countries who teach management. They met together for informal discussions which led eventually to the establishing of an International group of the teachers of management. This group held a second meeting at Delft, Holland, in June, 1952, and is now well on its way toward becoming an effective action group.

With all of these groups, both governmental and non-governmental, all interested in management, there are bound to be duplications, overlapping areas of activity, and confusions. There is even confusion over terminology. The non-governmental groups like to talk about scientific management or, at least, management. The governmental groups prefer the term productivity. In the area of action, there is also confusion. In general, each group is asking for assistance from the same people. There are only a limited number of people at present who both qualify as management experts and have time and energy to devote to management activities in addition to doing their regular work. Thus, these people are over-burdened, and the groups seeking to advance management—both governmental and non-governmental—are understaffed with people who have real management know-how.

RESULTS

It would be easy to concentrate on the weaknesses of the present situation and to decry the needless waste and confusion. Personally, however, I cannot get very much concerned about it. The important thing is that the yeast is working. People all over Western Europe are coming to see in better management the answer to at least some of their problems. They are seeking management assistance wherever they can find it. There are a confusing number of agencies that are trying to give this assistance and at times they seem to fall over one another's feet. However, the fact remains that the movement towards better management has developed a real vitality in these post-war years. The result is bound to be good from the standpoint of raising living standards in spite of current confusions and duplications.

There are, of course, a number of cross currents which further complicate the picture. There is a slowly developing concern on this side of the Atlantic that if we share our management know-how with people overseas, they will soon be underselling us in our own markets because of their cheaper labor.

There are unquestionably many adjustments which will have to be made as Europe becomes more productive.

They will be able to undersell us on certain products, and some of our money will start to flow overseas in payment for products rather than as government grants. Yet, at the same time, the people who receive our money will be able to buy some of the things we make better than they do. We talk so much about world trade but seem to fear it so when it threatens to become a reality. It is quite understandable that those of our manufacturers who are hurt in the process of readjustment will rush to Washington with loud cries for help. It is to be hoped that we will have enough wisdom to refrain from starting a tariff war which will only strangle world trade and lose us friends.

DISTRIBUTION SLIGHTED

Another matter for concern is that most of the management know-how we have sent abroad so far deals with production techniques. We have done very little in the field of distribution. This is a mistake which is now beginning to receive some attention, but it will be some time before the situation can be remedied. Sales methods, market research activities, distribution practices and the like, which have been so successful in this country, are virtually unknown in Europe, or are grossly misunderstood. Scientific management includes much more than merely increasing productivity. We have, as yet, told only part of the story to our friends overseas.

Yet, with all of its shortcomings, confusions and duplications, our general program of sending management know-how abroad has been effective. Productivity is increasing in many European industries and most of the shortages of products have been relieved. Does this mean that we have won the battle for men's minds in Western Europe? I am afraid it does not. We have fed the hungry and have helped our friends in a material way, but if we stop there, we won't have accomplished very much.

A few weeks ago, a European friend came to see me. He was a management man with long experience. There is very little in the way of management know-how that we could teach him. It is probable that he could have taught us a thing or two, for management know-how is by no means an exclusively American product; but my friend needed help—needed it very desperately.

When he arrived, his whole outlook was deeply pessimistic. His conversation dealt largely with the reasons why things couldn't be done. He was fearful of the present, and hopeless about the future. In other words, he had the viewpoint which is all too prevalent in Europe at the present time.

My friend stayed in this country about five weeks. He visited people in various eastern and mid-western cities whom he knew. I saw him frequently enough to observe the change which began to take place in his thinking. Gradually his pessimism lessened. He began to plan some of the things he could do when he returned home. Just before he left I listened to him as he addressed a small group in New York. It was a fighting talk, full of constructive suggestions for action. He had a plan, a program for the future, and his own personal batteries were fully recharged.

What had happened? Had his friends given him a pep talk and pointed out in what respects his pessimistic thinking was wrong? I don't think so. My friend's spirit was refreshed merely because he had had contact with the optimistic viewpoint and philosophy which is so uniquely American. He was naturally an enthusiastic and constructive thinker, but he had been too long in contact with the pessimism and the cynicism which now hangs over Europe like a pall. When he came in contact with untrammeled American thinking, it was a tonic of the highest order.

OUR NEXT TASK

This incident illustrates the next task that we must set for ourselves in the battle for men's minds. We have helped advance scientific management abroad and the results have been good. Now we must try to export something else—the philosophies which make scientific management successful.

Interestingly enough, we as individuals are the only ones who can do this job. The government can't do it. It is only you and I and thousands like us throughout the country who can refresh the spirit of our European friends and give them the will to resist Communism.

I don't mean to imply that our government is too lacking in knowledge or ability to do this job. There are people in Congress who are exceptionally well informed on the European problem. The Congressional Record of May 28, 1952, for example, contains two of the clearest analyses of the situation abroad that I have ever seen. However, refreshing the spirits of individual European men and women is just not a job for government. It is a job which must be done by you and me, if it is to be done at all.

The government of any foreign country is always on difficult ground whenever it tries to deal with the nationals of another country, no matter how good its intentions. If a person is known to represent our government, those with whom he is dealing at once become suspicious. No matter what he does, they feel that he must be trying to promote the interests of our own country, and they tend to close their minds to his suggestions.

Moreover, governments by and large can only deal with other governments. They are not in a position to deal with the individual nationals of another country. This makes a completely impossible situation as far as selling anything that must be bought by individuals, if it is bought at all, is concerned.

Just recall your own experience in a similar situation. Some of you, for example, undoubtedly had experience in installing wage incentives in the days before unions. You can recall that it was fairly easy to explain, sell and install a wage incentive plan if only individual workers were involved. Some of them at least could see the benefits of the plan quite easily and would indicate a willingness to go along. They went to work, demonstrated that your plan would produce higher earnings and set the example for the rest.

If the wage incentive plan were a group plan affecting ten or a dozen people, the selling job was more difficult. One or two dissenters could hold up things for a long time, but with persistance and good salesmanship, a small group could also be sold.

When unions entered the picture, the size of the group that had to be sold became much larger. During the war we sometimes found it necessary to sell an incentive plan to the workers, the local union, the international union and a government agency as well. Even when there was mutual confidence among all concerned, the selling job was of staggering proportions.

When it comes to selling philosophies, attitudes, viewpoints and other things of the spirit, which are obviously more difficult to sell than wage incen-

tive plans, the selling of one large group by another large group is out of the question. It is something which must be handled at the individual level.

I had the pleasure recently of listening to an address by Father Keller, founder of the Christophers. His theme was "You Can Change the World." He has written a book under this title which is well worth reading. He explained how insiduously the Communists are at work undermining us all over the world. First, they look for people who have lost their basic faith in God. If they accept it as a fact that the state's will and not God's will is to be done, then they are ready to accept any kind of false reasoning that the leaders of the state may wish to pass along. These people are encouraged to go in for writing, teaching, radio and television—any of the communication's arts which influence men's minds. Thus, insiduously the doctrines of Communism are spread.

THE INDIVIDUAL APPROACH

Although we must be interested in influencing people in all walks of life, we are primarily management men. Therefore, our greatest efforts should be in this field. What should we do? We can accomplish a lot if we will make it our business to seek every possible occasion which will provide contacts with management people from other countries. There are many teams of management people coming over here from abroad, for example. They probably have asked for permission to visit your plants so often that you may wonder if the effort you have to make to entertain them is worth while. Instead of a nuisance, it's an opportunity for a contact with someone from another country with whom you have an interest in management in common.

When the contact is made, what then? My suggestion—just be yourself. If you try too hard to make a sales presentation, it may backfire. We have found in our own training work that when we try to present a formal talk to our foreign visitors on the benefits of the American way of life, their notebooks—and their minds—remain closed. If we talk about subjects that they are interested in—management methods, for example—and let the discussion reflect our attitudes, philosophies and basic beliefs, we gradually begin to make an impression which is deeper and more lasting than any clever sales talk could ever be.

So accept the contacts with people from other countries that come your way or better still seek them out. Be friendly; be natural; invite them home, if you can; talk about things that interest you as an American; take them to a football game; let them know that Americans do not think it sissy to go to church. Reflect optimism for the future; refuse to be discouraged by the problems they lay in your lap; don't accept as a basic premise the statement that their conditions are different—but, of course, don't argue about it either; show a positive attitude towards life.

That shouldn't be hard to do. After all, that's the way we feel as Americans. That's why we go ahead and get things done without spending much time worrying about obstacles. That is the kind of outlook we must help our friends overseas to develop and maintain, if the Western World is to remain strong and united. Our management know-how has helped our friends overseas tremendously but it is not enough. They need to find a new spirit and a reborn faith in the future. Let's help them. We can do it. ★

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Is Industry Autocratic?

By ALVIN BROWN

"No" says the author emphatically. Maybe some industrial administrators are, but it's improper to label industry as autocratic. Brown uses dictionary definitions to prove his point.

HIGHLIGHTS ON THE AUTHOR

Alvin Brown is vice-president for finance and a director of Johns-Manville Corp., having joined J-M in 1940. He has served in various capacities in the offices of the Director of the Federal Budget. His third book, "The Armor of Organization," has just been published by Hibbert Printing Co., Trenton. He is a visiting lecturer on organization at M.I.T.

AN ADMISSION against interest, in the popular mind as well as in law, has an especial claim on belief. When industry is called autocratic by its own retainers, therefore, it is no wonder if the unwary believe it. There is cause for greater wonder that anyone could so stupidly vilify his own calling. It seems the duty of someone with a decent respect for that calling to scotch the libel.

A recent symposium on employee relations* asserted that there are two opposing views about the nature of industry. One, it said, is, "You can't steer a ship by the majority vote of the crew." The contrary view, it said, is, "People are human beings, not economic units." Without troubling to say how it thinks these two viewpoints could be opposed, and without expressly associating itself with either, it reveals its bias in a footnote to the first viewpoint.

In the Habbe study, a vice-president is quoted as saying:

> "The average individual today spends about eight hours of his day exercising his rights and responsibilities as a free citizen in a democracy. But during his eight hours on the job, he lives in an authoritarian world."

A "president" is quoted as saying:

> "Industry must remain basically authoritarian—at least for a long time to come."

A "board chairman" says:

> "Good management is the rule of the best minds. It is anti-democratic."

WHAT DOES IT MEAN?

In the absence of specific definition, a man must assume the words are used in their ordinary meaning. Any other course leads straight into a chaos of confusion.

Let us look to the dictionary, then, to see what these words mean. Let us begin with *authority*, for it may be that the misunderstanding centers on this word. *Authority* means "legal or rightful power." Mark the words by which *power* is qualified. Authority is not arbitrary power or uncircumscribed power; it is *rightful* power. *Legal* is only a special kind of *right*.

Authoritarian comes from *authority*, but, as often happens, the appropriated use is a perverted use. *Authoritarian* means "advocating the principle of obedience to authority as opposed to individual liberty." In this use, *authority* clearly is given a different sense than that of its preferred definition. There can be no conflict between *rightful* authority and individual liberty. Individual liberty exists and is protected by *rightful* authority. If the definition of *authoritarian* means anything, it must refer to authority (power) that is not rightful. If it is to mean anything, it must be read as "arbitrary power."

And so, by this perverted derivation, the stigma of *authoritarian* is by many persons imputed to the innocent word *authority*.

We have one more question to put to the dictionary. *Democratic* means "of or pertaining to democracy," which in turn means "government by the people." *Anti-democratic*, then, must mean "opposed to government by the people."

Both *authoritarian* and *anti-democratic*, therefore, stand for ideas connected with the situation of people in a political state. If we are to expose the nonsense of applying these terms to industry, we must see what a political state is.

APPLIED TO GOVERNMENT

A nation is a body politic. Its basic character depends upon the power of its people. If the people have the power periodically to decide who shall govern them, and how they shall be governed (and probably, also, if they have the right peacefully and honestly to acquire and hold property, subject only to equitable levies for national maintenance) then that is a democracy. It is not authoritarian. If that power is abridged in any fashion, the result is something other than a democracy, *and it is probably authoritarian*. These definitions may lack art, but they will serve sufficiently for this discussion.

In a democracy, therefore, we find that people have certain rights. To the extent those rights exist, they belong to every person. That does not mean the rights are unlimited. They are rights of exact definition.

In a democracy, also, we find that

*Habbe, Stephen, "Communicating with Employees"; *Studies in Personnel Policy*, No. 129, New York, National Industrial Conference Board, December, 1952.

people have certain obligations. No right can belong to one person except with a reciprocal obligation upon all other persons. To the extent those obligations exist, they rest upon every person. That does not mean the obligations are unlimited. They are obligations of exact definition.

These are the incidents of a democratic body politic—of a nation of free people. They are what we mean by individual liberty, which, the dictionary says, is the opposite of *authoritarian.*

These rights and these obligations—this liberty—attach to people in their capacities as members of the nation. And they attach in that capacity alone. Since they are the rights and obligations existing among a free people as a nation, they would have no meaning in any other relationship.

They have no meaning, for example, in private contracts, except so far as private contract may not abridge public rights and obligations. By a private contract, a man can assume an obligation and secure a right that are peculiar to himself. No one else shares them. No one thinks of saying that a private contract is, or should be, democratic. We do not say it is undemocratic (unless it seeks to abridge public rights or obligations). It is, and can be, neither. The word is merely irrelevant. It is without meaning when applied to individual, private rights or obligations.

Things are democratic or undemocratic, in other words, only when they relate to public rights or obligations—to the rights or obligations of a man in his capacity as a member of the body politic. And just what is this capacity? In terms of organization, it is the capacity of joint author of an enterprise. The enterprise is the nation—its purpose, the regulation of the public affairs of its citizens, which is to say the preservation of the rights and obligations they have decided shall compose their common relationship. Nations are democratic when these things are decided by the whole people. The quality of democracy pertains, therefore, to the authorship of political enterprise.

AGENCY OF THE PEOPLE

For the execution of their will, the people (the authors of the nation) must have an agency. This agency we call *government.* It must be composed of persons. These persons must be selected from among the people. They must engage to perform the will of the people. This is usually signified by an oath of obedience to the nation's laws and institutions.

These persons who act as members of government are also members of the sovereign people, truly; but as members of government they do not act in that capacity. They have assumed a new capacity. It does not impair the old; it is an added capacity. It has different rights and obligations. The man who accepts this capacity assumes an obligation to serve the whole people in the manner it has stipulated in respect of his job. He also acquires the right to discharge the duties of his office, which is the same as saying the right to exercise authority—legal and rightful power. This obligation and this right are peculiar to him. No other person has them. They are wholly different from public rights and obligations—from *democratic* rights and obligations—that every person possesses equally.

This person has, therefore, a dual capacity. As a member of the body politic, he retains his democratic rights and obligations. Whenever he is viewed, or acts, in his capacity as a citizen, he exercises those rights and he owes those obligations. In his other capacity as a member of government, he has rights and obligations that are peculiar to himself. The two are neither consistent nor inconsistent. They merely have nothing to do with each other. It is an example of the basic difference in organization between authorship of an enterprise and participation in its administration.

Properly speaking, then, no government can be authoritarian or undemocratic. Government is merely an agency. Such words have no meaning when applied to the agent. They are rational only when applied to the principal—the author—the possessor of political power.

APPLIED TO INDUSTRY

Let us now see what analogy there is, if any, between industry and the body politic, and whether it justifies applying the terms *authoritarian* and *undemocratic* to the former.

Regarded as enterprise, and in terms of organization, we do see an analogy at once. An industrial enterprise has an author—sometimes individuals, more often stockholders. These authors decide the purpose of the enterprise and how the affairs of the enterprise shall be administered. To this extent, they are comparable to the authors of political enterprise.

LIKE THE GOVERNMENT

We also see at once that the administrators of an industrial enterprise—its officers and employees—may be compared to a government. They are the agency chosen to execute the will of the authors. Each assumes an obligation when he is employed. Each also acquires the right to discharge the duties of his office, which is the same as saying the right to exercise authority—legal and rightful power. This obligation and this right are peculiar to him in his capacity as an employee of the enterprise. They have nothing to do with his rights and obligations as a citizen.

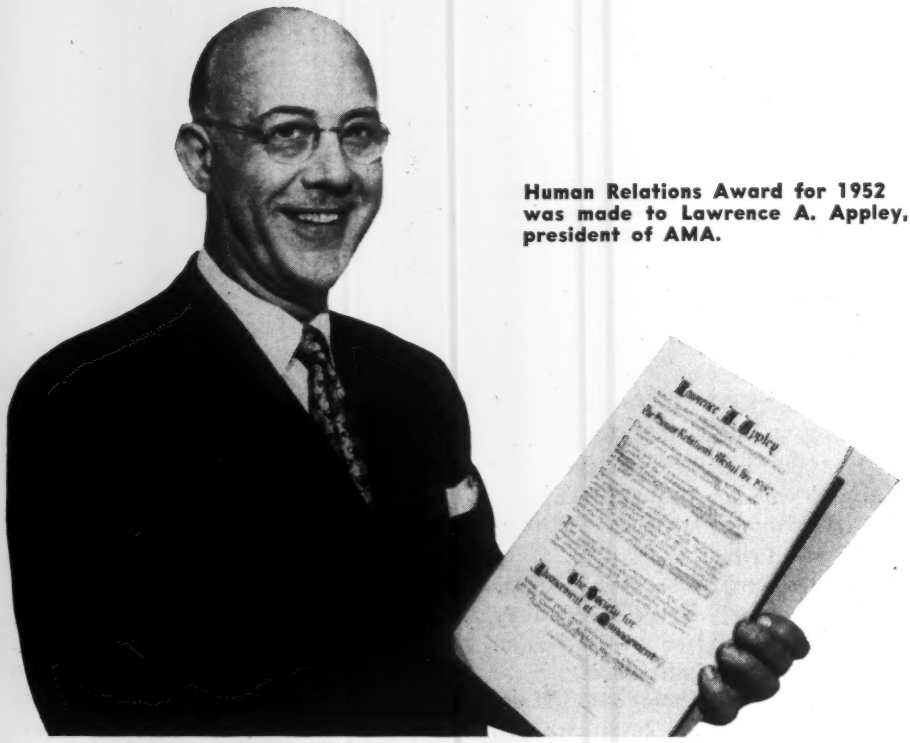
When confused persons call industry "authoritarian," it is seldom clear whether they mean the authors of industrial enterprise or its employees. It makes little difference, however, for either meaning is equally absurd. *Authoritarian* is the opposite of *individual liberty*—that is what the dictionary says. *Individual liberty* is a quality pertaining to joint authorship of political enterprise. It is devoid of meaning when applied to industrial enterprise, where the rights and obligations are private, individual ones. Since it is meaningless to speak of individual liberty in industrial enterprise, it is equally meaningless to call industry authoritarian.

It is possible that this distorted notion grew because some industrial administrators have been arbitrary or "autocratic"—have, in other words, misused their authority; may, indeed, have violated their public obligations. But this is to apply blame in the wrong place. The misguided administrator should be blamed, not authority—not the legal and rightful power to discharge the duties of an office.

In a world where straight thinking was never so important, how can anyone condone what, at the best, is careless use of words loaded with dynamite, or what, at the worst, is propagation of a dangerous creed? Whenever we hear industry called authoritarian or undemocratic, then, let us deem it a duty to reply firmly: *Industry is human.* It is not without its sins. But that does not justify the calumny that industry operates in ways that are characteristic of autocratic, totalitarian states. ★

1900 Attend SAM Spring Conference

Industrial Incentives Award was presented to Phil Carroll (left) by Edward W. Jochim.



Human Relations Award for 1952 was made to Lawrence A. Appley, president of AMA.

OVER 1900 management men attended the eighth annual Industrial Engineering Conference of the Society for Advancement of Management, held April 16th and 17th, at the Hotel Statler, New York City. Registrants came from over half of the Union and from Canada, England, India and Puerto Rico to attend the two-day conference.

The conference, broadly titled "Time Study and Methods for Lower Total Costs," set an attendance record for spring conferences. This year, partial registrations were at a minimum, the majority of the registrants attending all sessions of the conference. Advanced registrations, also, were ahead of previous years.

F. W. Hornbruch, Jr., Philadelphia Chapter, and Ralph Presgrave, Montreal Chapter, were general chairmen of the conference. As in past years, the Management Division of the American Society of Mechanical Engineers served as co-sponsor of the conference.

CHALLENGES MANAGEMENT

Speaking at the Thursday dinner meeting, Mr. Lawrence A. Appley, president of the American Management Association, challenged American management to prevent the "coming depression" that the "prophets of doom" have so long prophesied.

"Ever since the close of World War II, an economic depression of some considerable proportions has been expected by many and prophesied by quite a few. The slight inventory adjustment which took place in 1949 was thought by many to be the beginning of such a depresson, but with the exception of a few industries, we took it in stride. Since then, the 'coming depression' has been very much in the public mind.

"It did not come in 1950, or 1951 or in 1952. It appears now that 1953 will be better than 1952. We still hear, however, that it is quite possible to occur in 1954."

Lawrence A. Appley, AMA president, challenges American management to prevent an economic depression; Carroll and Mundel honored with 1953 Society awards.

The Gilbreth Medal for 1953 was awarded to Dr. Marvin E. Mundel by Edward W. Jochim.

Today we find ourselves operating in an atmosphere of a "peace scare" Mr. Appley pointed out. This scare was reflected by the dip in the stock market immediately after the resumption of armistice negotiations in Korea. "How can we be honest about what we are fighting for and then be scared of peace—from the standpoint of the economic health of our country," he asked. "The end of war and the fear of war would free our economy and our society to release its productive forces toward one end—the development, production and distribution of more products and services at a higher quality and a lower price so that more people can have more. That is the very essence of our economy."

Just before Mr. Appley spoke, President Edward W. Jochim presented to him the Society's 1952 Human Relations Award. The award was announced at the Society's fall management conference, but due to conflicting dates Mr. Appley was unable to receive the award at that time.

L. to r. Bruce Payne, Lawrence A. Appley and Edward W. Jochim.

CARROLL, MUNDEL HONORED

Other Society awards were presented at the Thursday dinner meeting. Phil Carroll, professional engineer, Maplewood, N. J., and Dr. Marvin E. Mundel, director of the Army Ordnance Corps Management Training Program, Rock Island Arsenal, Ill., were presented the 1953 Industrial Incentives Award and the Gilbreth Medal respectively.

The Industrial Incentives Award was established by the consulting firm of Rath & Strong, Boston. It is awarded annually to the individual making the greatest contribution to financial and non-financial incentives, performance standards and time study during the previous year.

Phil Carroll, a graduate of the University of Michigan, was one of the founders of Dyer Engineers, Inc., Cleveland. In 1940, he established his own consulting firm. Phil is a frequent con-

tributor to ADVANCED MANAGEMENT and is the author of four texts on time study and production control. He is a member of the National Society of Professional Engineers, the American Society of Mechanical Engineers, the American Institute of Industrial Engineers, the American Management Association, the National Office Management Association and SAM.

The Gilbreth Medal, first awarded to former President Herbert Hoover, is given by the Society annually in honor of the pioneering work done by Frank and Lillian Gilbreth in the advancement of scientific management. It is awarded to the person who has made the greatest contribution to the industrial engineering movement in the field of motion study.

Dr. Mundel, formerly chairman of the Industrial Engineering Department, Purdue University, is a graduate of New York University and Iowa State University. Both an educator and industrial engineer, he is a member of Sigma Xi, Iota Alpha, Tau Beta Pi, ASME and the American Society for Engineering Education. He has contributed articles to ADVANCED MANAGEMENT, and has authored the book, "Motion and Time Study." Dr. Mundel did much of the pioneering work in the fields of farm work simplification and work simplification in the home.

MANAGEMENT TALENT SHORT

The shortage of competent managerial talent in industry today is even more acute than the shortage of engineers and is rapidly getting worse, stated Harold F. Smiddy, vice-president in charge of Management Consultation Services, General Electric Co., and the Society's vice-president in charge of Research and Development, at the Friday luncheon.

"Opportunity literally clutches at you who are willing to fit yourselves for the task. Both because of your 'built-in' professional attitude and because of your trained understanding of technology and its implications, it is plain that you should have a highly preferred status in competing for the expanding and ever-more-complex jobs for which competent managerial talent is being sought on all sides," he said.

Mr. Smiddy also made it clear that the opportunity to triple income in the next few years was just as challenging in the field of industrial engineering. "The needs, challenges and rewards for contributions for better technical industrial engineering effort are especially clear today," he said.

U.S.-CANADIAN TIES

M.W. Mackenzie, executive vice-president, Canadian Chemical & Cellulose Co., Ltd., Montreal, was the Thursday luncheon speaker. Mr. Mackenzie stressed the close ties between Canada and the United States and pointed out the two-way nature of the ties.

Stressing the volume of U.S. capital invested in his country and the volume of raw materials imported into the United States annually from Canada, Mr. Mackenzie paid tribute to this country's efforts to reduce trade barriers.

"Export trade is one of the main factors that sets the pace of the Canadian economy. We are, therefore, to an important extent, dependent on the good health of international trade in general and more particularly on our trade with the United States. There can be no doubt of your influence on our welfare, but as we are your biggest supplier, your stake in our prosperity is perhaps greater than you may have realized."

Other speakers at the conference were:

Thursday Morning—H. G. Fromm, production manager, Johnson & Johnson, New Brunswick, N. J., *"Production Planning and Layout"*; Robert Levin, production engineer, United Mills Corp., Mt. Gilead, N. C., *"Methods and Measurement"*; Charles G. Herbruck, assistant to the secretary, The Lincoln Electric Company, Cleveland, Ohio, *"Incentive Management."*

Thursday Afternoon—W. W. Taylor, supervisor, Time Study Department, Cincinnati Milling Machine Company, Cincinnati, Ohio, *"How Far Should Incentives Be Applied?"*; Joseph G. Gilland, manager, Cost Estimating Department, Packard Motor Car Company, Detroit, Mich., *"How To Reduce Time Study Grievances"*; Phil Carroll, professional engineer, Maplewood, N. J., *"How To Control Production Costs."*

Friday Morning—William Langenberg, manager, Cost Division, Johnson & Johnson, New Brunswick, N. J., *"New Techniques In Productivity Measurement"*; L. A. Brouha, M.D., Dr. of Science, Physiologist, Haskell Laboratory for Industrial Toxicology, E. I. du Pont de Nemours & Co., Inc., Wilmington, Del., *"Fatique—Measuring and Reducing It"*; Dr. Alphonse Chapanis, technical staff, Bell Telephone Laboratories, Murray Hill, N. J., *"Contributions of Experimental Psychology To Machine Design."*

Friday Afternoon—Gerald B. Bailey, vice-president, J. D. Woods & Gordon, Inc., New York, N. Y., *"Basic Motion Timestudy"*; Andrews M. Lang, executive secretary, MTM Association for Standards and Research, Pittsburgh, Pa., *"Methods—Time Measurement"*; Dickey Dyer, business manager, The Work-Factor Company, Cleveland, Ohio, *"Work-Factor."*

1953 PROCEEDINGS

Eighth Annual
Industrial Engineering Conference

"Time Study and Methods for Lower Total Costs" is the story 15 industrial leaders—leaders in scientific management — bring you in the 1953 PROCEEDINGS of the Society's 8th annual Industrial Engineering Conference, held April 16th and 17th, Hotel Statler, New York City.

With increased emphasis on more production at higher quality and at a lower cost by all managements today, the 1953 PROCEEDINGS will give you sound, practical thinking — advanced thinking—on matters that affect you directly as members of management.

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411 FIFTH AVENUE, NEW YORK 16, N. Y.

How Old Is Old?

By LOWELL F. JOHNSON

This is the third in a series of articles dealing with managerial aspects of personnel administration.

GERTRUDE STEIN would probably say, "Old is old is old." This is about as clear as some age hiring policies and only slightly less obscure than some quasi-compulsory retirement policies. This may not apply to your organization. But there are a lot of organizations where it's a direct hit!

Why the sudden concern about age? Let's look to the Congress for the answer. Perhaps we're about to be sandbagged by a statute again when we could have moved voluntarily into an area which is causing concern to the average American worker.

THREE BILLS PENDING

The House Labor Committee now has three identical bills (H.R. 1579, 1585 and 1593) which would make it an unfair employment practice to discriminate against older persons at the time of selection or separation. They are unique in that their prohibitions run against both unions and employers and do not apply to unions representing less than 50 workers and employers with less than 50 employees.

It is apparent that the sponsors of the bills feel that the line of demarcation between younger and older workers is 45 years because they refer to a Congressional policy statement which says, "Hiring bias against workers over 45 years of age adds to the number of persons receiving public assistance and deprives older persons of the dignity and status of self-support."

The suggested procedure follows along the lines of federal regulations against discrimination in other areas of industrial and business contact. The procedure — filing charges, informal mediation, conference and conciliation, formal hearing, issuance of a cease and desist order and court review and, at long last, court enforcement in that sequential order.

In 1950, Massachusetts added discrimination "because of age" to its basic Fair Employment Practice Law. In that state this type of discrimination is processed in the same manner as charges of discrimination because of race, creed, color or national origin. Apparently Massachusetts has been able to handle the problem without any serious difficulty.

Perhaps this is evidence that if we are going to have legislation of this type it can better be handled by the states than on the federal level.

82nd CONGRESS ACTED

During the 82nd Congress an amendment to the Independent Offices Appropriations Bill was enacted forbidding discrimination by the federal government in the hiring and firing of "old" employees in government operations. The Civil Service Commission has declared its intention to implement this amendment.

This may well be another area in which the Federal government in its own operations is pointing the way toward future general enactment of a policy in the labor relations field just as they have many times before.

Since it is estimated that over one-third of our work force is over 45 years of age, there is no doubt that major labor organizations will get behind this program. The bills are in the hopper and the call is ready to be sounded. Are you going to adjust your policy to cooperate with the inevitable? ★

JUNE CHAPTER ACTIVITIES

CHAPTER	SUBJECT	SPEAKER	TITLE	PLACE	DATE
Asheville	Annual Meeting and Ladies Night			Biltmore Forest Country Club	19
Charlotte	Ladies Night			The Barringer Hotel	11
Greenville	What's New in Time & Motion Study	Rhett Ball Ed Michaels	Bruce Payne & Associates Henderson, Lindsay & Michaels	Hotel Greenville	10
Hartford	Annual Business Meeting				18
Hudson Valley	Golf, Dinner and Full Social				
Milwaukee	Fun Night			Blatz Brewing Company Auditorium	11
New York	Ladies Night			Hotel Statler	18
Philadelphia	Dinner and Dance			Overbrook Country Club	5

NMC INTERNATIONAL NEWS

Brazil Offers American Industry A Fertile Field For Business Expansion

BRAZIL is on the threshold of a new era of prosperity which will be shared by those United States firms with the wisdom and confidence to invest now in her economic future, said Mario Capelli, managing director of Rheem Metallurgical S.A., at the March luncheon of the National Management Council, New York City.

American investors, especially those that are not yet established in Brazil, are not fully aware of the advantages of that country's free exchange law, which permits American investors to take profits out of the country, Mr. Capelli pointed out. "With free exchange, all foreign investors are able to move their capital in *and out* of Brazil in an atmosphere of absolute and guaranteed freedom." It is the absence of this guarantee of free exchange of capital that has, in the past, discouraged American investors from risking capital in foreign countries.

Mr. Capelli, an American citizen and a resident of Brazil for the past 11 years, declared that "the Brazilian economy in no way conflicts with that of the United States; in fact, it compliments it admirably. Brazil possesses many of the raw materials the United States needs, and the latter, as a nation, is best equipped to assist Brazil in the development of these resources."

RESOURCES GREAT

Of all the countries in the Western Hemisphere, Mr. Capelli says, Brazil, with the possible exception of Canada, offers the greatest possibilities and challenge. Brazil has every possible kind of opportunity to offer enterprising Americans who are looking for new industrial frontiers.

Among the resources that make Brazil so attractive to American industry for capital investment are the following:

1. immense geological resources—which have hardly been tapped;

2. a large, friendly population—growing at the rate of a million persons a year;

3. a stable, democratic government—which favors and protects foreign investors;

4. a vast economic organism in its formative state; and

5. a national economy—which needs literally everything, and as much of everything as possible.

BUT BRAZIL NEEDS HELP

"What Brazil needs most is the help of people like you (members of SAM as well as NMC). I feel certain that singly and as a group you could assist enormously in the development of that immense country.

"Brazil needs more basic industry, more investment capital and more people who are trained in management planning and organization.

Most Americans working in Brazil are happy with the conditions of the country and are sorry to leave the country, Mr. Capelli says, "even if relocation means coming back to settle in the United States. I think that one principal reason for this feeling is the fact that the Brazilian economy, which is infinitely more simple and primitive than ours, gives to the average person a feeling of accomplishment for the common good which only a very few outstanding men can experience in more complex economies."

"Quite apart from sentimental considerations, it would be disastrous for the United States not to help Brazil become a really strong and prosperous nation. The work which the Communists are carrying out in Brazil is especially directed at creating resentment and enmity against the United States, and has already started to bring dangerous results.

"The neglect of our government to assist Brazil economically after the second world war—while distributing billions of dollars to less friendly European countries—has given excellent ammunition to these Communistic groups to use with impunity against us in our own Hemisphere.

"And Brazilians, let it be said, have never asked us for gratuities. All they expect of us are loans which they will repay with interest and which will some day enable them to be stronger and more helpful friends than they are today," Capelli concluded.

SAO PAULO CONFERENCE

Marcell Rand, vice-president, Remington Rand Inc., and a vice-president of the Council, was chairman of the luncheon meeting. Mr. Rand disclosed that the Xth International Management Conference would be held in São Paulo, Brazil, February 19-25, 1954. Delegates from 20 member countries, including about 1,500 from the United States, will attend the CIOS conference.

The conference will be devoted to the free exchange of management techniques on an international level. This is the first CIOS conference to be held in South America, and it has attracted a great deal of attention from American managements. For complete details, write the National Management Council, 501 Fifth Avenue, New York 17, N. Y.

EDITOR'S NOTE: NMC International News, written by the staff of the National Management Council, is a regular feature of this magazine. The Society for Advancement of Management is a charter member of NMC, a non-profit non-political organization, founded in 1933 by the leading societies and associations interested in the promotion of the art of management. NMC represents the United States in the International Committee for Scientific Management (CIOS), a co-operative society, composed of like associations in 20 other countries.

The Management Bookshelf

Automation, The Advent of the Automatic Factory by JOHN DIEBOLD. 181 pages. D. Van Nostrand Company, 1952. $3.00.

Since time immemorial, men have been endeavoring to replace human labor with machines. Whether such endeavors were prompted by innate laziness or by a desire to develop a new or more efficient piece of machinery that would benefit the owner, the fact remains that the principle of automatic machinery is not so new as many would be prone to believe.

The intricate machinery devised by the Egyptian priests for their temples is an example of what human ingenuity (even on a low level of industrial development) can accomplish. The Greek *klepsydra*, a crude timepiece, is based on principles still in use.

Mr. Diebold's book is a very bold and successful attempt to present to the lay reader a simple exposition of the modern principles of automatic machinery. Not so many years ago there was a very popular term—*technocracy*—which denoted the idea that modern civilization would be governed by the engineering science and profession. Perhaps the philosophical bases for such an idea were not fully clarified by its proponents. Now, we have a simple and more thrilling term. We speak of the *push-button era*.

Modern science fiction writers may dream up a world in which no one will work, and in which machines will do everything—except eat and digest your food. Mr. Diebold shatters such ideas.

Automatic machinery is the result of dual effort by mathematicians and engineers. The work of a mathematician, which seemingly had no practical application a few years ago, is finally finding practical applications. Actually, it is not the engineer now who calls the tune. The engineer looks to the mathematician for the solution of his problems. However, it should be clearly understood that the mathematician does not have all the answers.

As a matter of fact, the mathematician indicates in very sober terms that a society with machines replacing men is an impossibility.

Unfortunately Mr. Diebold, in his attempt to present his story in a popular manner, has had to sacrifice highly technical accuracy. Although his presentation is masterfully simple and easily understood, some phases of the underlying principles of modern automatic machinery and the organization of modern industrial procedures suffer from a certain lack of comprehensiveness. His discussion of operations analysis is sketchy. Operations analysis is a new principle of industrial and other research. It proved its mettle during World War II, and its future in industry is bright. However, Mr. Diebold's presentation is rather a misrepresentation of the nature of operations research.

If one would consider the book as a whole, it must be admitted that Mr. Diebold has made a major contribution to business and industrial literature. Mr. Diebold should be commended for this first attempt to bring down to earth the major ideas of the principles of automatic processes in industry.

It must be admitted that there will be substantial changes in industry and business in the future. Such changes will be the result of the introduction of the principle of automation. How such changes will affect everybody from the top executive down to the shipping clerk is a fascinating story.

S. K. WOLF
Associate Professor of Commerce,
Accounts, and Finance
New York University

Materials Handling by JOHN R. IMMER. 591 pages. Illustrated. McGraw-Hill Book Company. $8.00.

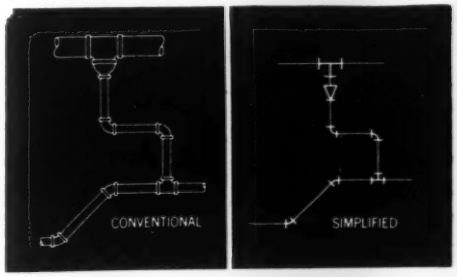
Mr. Immer's new materials handling book serves a dual purpose. It updates and re-evaluates materials handling methods for the materials handling engineer in industry. And it provides a basic text for the undergraduate or graduate student preparing for this segment of industry.

Consisting substantially of industrial case histories, underlying principles of each are clearly delineated and fundamental issues are defined. The author has called heavily upon industrial experts in the gathering of material.

For the first time, motion and time study are considered as part of the total materials handling picture. A section on principles of motion and time study and their application to materials handling is included.

Simplified Drafting Practice by WILLIAM L. HEALY and ARTHUR H. RAU. 156 pages. Illustrated. John Wiley & Sons. $5.00.

This book can best be reviewed by reproducing two dust-cover drawings from the book. They tell quickly and simply the theory behind "simplified drafting."



Mr. Healy, supervisor of technical service, Switchgear Department, General Electric Co., and Mr. Rau, manager, Drafting Service Section, General Electric Co., have not written a text book on drafting. Rather they have spelled out a simplified way to do an engineering drawing without the sacrifices of time required by old fashioned, arty engineering drawing methods.

The principles of "simplified drafting" are now being applied in General Electric drafting rooms. Benefits are already apparent. For example: one department turned out a drawing on four square feet of paper which previously covered 57 square feet of paper; a drawing that previously took eight days was produced in two days. The savings in man-hours, money and materials through "simplified drafting" are great if the break with tradition can be made.

Student Chapter Activities

RPI SURVEYS STUDENT PROFESSIONAL SOCIETIES

RENSSELAER Polytechnic Institute undergraduate chapter of the Society has completed a survey of 11 professional undergraduate societies now established on the campus at Troy, N. Y. The purpose of the survey was to acquaint the national office of the Society with the varying conditions under which undergraduate chapters of national societies operate.

In addition to the Society for Advancement of Management, the following student organizations were covered by the survey: A.S.M.E., A.S.C.E., A.I.E.E., I.R.E., A.I.Ch.E., A.Ch.S., American Institute of Architects, American Society for Metals, American Institute of Physics and the Institute of Aeronautical Science.

STUDENT CHAPTER NEWS

Alabama Polytechnic Institute. Plant visits: General Motors Corp., Doraville, Ga., and General Shoe Co. of Atlanta. Speaker: C. A. Addison, personnel director, Chevrolet Co., Flint, Michigan, "Practical Problems in Industrial Management." Ken Griffin is the new chapter president.

American University. Speaker: Warren Wolfe, general manager, Cities Service, "The American Petroleum Industry and Its Effect on the American Way of Life."

Babson Institute. Barry Beckwith is the new chapter president.

Butler University. Speaker: George Mercer, director of purchasing, P. R. Mallory Co., "Procurement in Industry."

Carnegie Institute of Technology. Speaker: John Pastin, executive officer, United States Steel Workers of America, "Organization of a Union."

City College of New York. Plant visits: Eagle Clothes Co., The Borden Co., Ford Motor Co., and Ruppert Brewers. Steven Flatau is the new chapter president.

DePaul University. Speaker: Mr. Hopkins, director of placement, DePaul, "Choosing an Employer." Annual chapter banquet speaker: James S. Perkins, president, SAM Chicago chapter, "The Rapid Growth of Industrial Management."

Emory University. Plant visit: Lockheed Aircraft Corp., Marietta, Ga. Speaker: Clarence E. Elsas, president, Fulton Bag & Cotton Mills, "Management of a Sales Organization in a Manufacturing Industry."

Illinois Institute of Technology. Warren Stockton is the new chapter president.

Indiana University. Speaker: John F. Mee, professor of management, "Development of Management in France." Clarence R. Messick, Jr., is the new chapter president.

North Texas State College. Roundtable: "Establishing Good Relations Between Management and Labor." A. J. Kincade, assistant office manager, Doctor Pepper Bottling Co., moderator. Panel members: James Bryson, vice-president, Dallas Mercantile National Bank; George Moffitt, president, Dallas Chapter, National Office Managers' Association; and John Prim, procedures analyst, Employers' Casualty Insurance Co.

Speaker: Roger H. Ringo, resident controller, General Motors Corp., Arlington, Texas, "Function of the Accounting Department."

Ohio State University. Speakers: Anse Harder, personnel director, D. L. Auld Co., and William Young, personnel director, Ohio Malleable Iron Co., "Labor and Management Relations"; W. H. Wuerdeman, assistant to the president, Williamson Heater Co., "35th International Labor Conference of the International Labor Organization."

Ohio University. Speaker: Roger Connor, research director, McBee Co., "The Office of the Future." Leo B. Coy is the new chapter president.

Oregon State College. Speaker: Lillian Gilbreth, "The Future of the Industrial Engineer."

Pennsylvania State College. Speaker: G. N. P. Leetch, director of PSC placement, "Job Placement."

St. John's University. Plant visits: A. S. Beck Shoe Co., Long Island City, N. Y., and International Business Machine Co., Poughkeepsie, N. Y.

St. Louis University. Speaker: Mr. Greenblatt, editor of the monthly journal of the American Society of Tool Engineers, "What Industry Expects of the Industrial Engineer."

Southern Methodist University. Speaker: James W. Key, "Credit and Management."

State University of Iowa. Speaker: Burton C. Baker, technical employment manager, Minnesota Mining and Mfg. Co., "What Industry Looks for in a College Graduate."

Syracuse University. Plant visit: Nestle Chocolate Co. Speaker: Robert Hoople, factory personnel director, Crouse-Hinds, Inc., "Personnel Work."

Temple University. Speaker: John McIlwain, chief industrial engineer, Atlantic Refining Co., "The Job of the Industrial Engineer."

Tulane University. Speaker: Ford Morrow, personnel manager, Kaiser Aluminum Co., "The Processing, Production and Marketing of Aluminum." Plant visit: Chrysler Corp. tank motor plant, Chalmetter, La.

University of Alabama. Speaker: Mrs. Pattie Stewart, acting manager of graduate placement, University of Alabama, "Job Areas for Management Majors."

Student Chapter News

(Continued)

University of Baltimore. Plant visits: American Can Co., Baltimore, and the Baltimore Porcelain Steel Corp.

University of Florida. Speakers: Dr. James E. Chase, Industrial Commission of Florida, "Recent Trends in Workmen's Compensation" and James J. Richardson, vice-president, Commercial Bank and Trust Co., Ocala, "Management Problems in a Bank."

University of Illinois. Speaker: A. H. Bosse, supervisor of technical training, U. S. Steel Co., "Mobilizing Facts for Management."

University of Maryland. Speaker: Harry Hubbard, personnel director, District of Columbia Government, "Development of Personnel Management."

University of Oklahoma. Plant visits: Wilson & Company, Oklahoma City, and Capitol Hill Ice Cream Co., Oklahoma City.

University of Pittsburgh. Plant visit: Homestead plant of the United States Steel Co. Edward Masilunas is the new chapter president.

University of Puerto Rico. Speaker: Teodore Moscoso, director, Puerto Rico Development Co., "The Industrialization of Puerto Rico."

University of Richmond. Speaker: F. R. White, director of education and training, Newport News Shipbuilding & Drydock Co., "Management and Personnel Relations."

University of Southern California. Speaker: Walter P. Coombs, partner, Fisher, Rudge and Neblett, "Decontrol—Will Wages Go Up?" Films from the Los Angeles Merchants and Manufacturers Association: "Maintaining Quality Control", "Maintaining Good Working Conditions", and "Supervision on the Job."

EDITOR'S NOTE: News of other student chapter activities was not received in time for publication.

McKee Named Editor of ADVANCED MANAGEMENT

James H. McKee, Jr., has been named editor of ADVANCED MANAGEMENT. Prof. Edward Schulz, assistant professor of management, New York University, and former editor of the magazine, has been appointed consulting editor.

Mr. McKee is an economics and political science major, Purdue University, 1941. From June to November, 1941 he served on the copy desk of the WALL STREET JOURNAL. Drafted in November, he served four and a half years in the army, both in domestic service and overseas. He was separated as a major in February, 1946.

In the fall of 1946, Mr. McKee joined the staff of the MCGRAW-HILL DIGEST as assistant editor. A digest of 50 business and technical magazines, it is published by McGraw-Hill International Corp. He was made managing editor in January, 1948.

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Costs and Cost Control

By ALEX W. RATHE

(Continued from page 17)

Production Planning also helps to conserve time. By dovetailing men with machines and materials, this function is somewhat like the task of the man in the railroad control tower whose job it is to run as much traffic over the tracks as possible—without collision. Again this type of work is not anymore limited to the shop; it is equally applicable in other fields, such as in clerical departments, in the engineering drafting room, in sales efforts, etc.

Then there is the large region of waste of materials which many techniques try to curtail:

Quality Control probably deserves the top place among the contenders for top honors here. Its objective, in the opinion of experts in the field, is to help save perhaps as much as 50% of the current losses of $5,000,000,000 a year from substandard production.

Stores Control, in its capacity as a reservoir between incoming material and their use in the factory, provides a cushion against the vagaries of supply; it has time and again proved its effectiveness in the reduction of material wastes as well.

Conservation and Reclamation Programs, Standardization, Purchase and Design Specifications—they are all allies in the battle against avoidable waste; and all are so well known to readers of ADVANCED MANAGEMENT as to make even a brief discussion unnecessary.

Finally comes the curtailment of waste and human resources. And here, management finds the engineer takes a back seat to permit the techniques of personnel management, to which he has contributed in a measure, to assume the well-deserved role of team captain.

Space permits only a scanty roll call of the more important crew members in this arena of the cost reduction campaign:

- proper selection methods
- effective training
- a fair wage and salary setup, perhaps with Job Evaluation and Wage Incentives as mainstays
- a satisfactory Personnel Services program
- good labor relations
- and, last but by no means least, a skillful supervisory force; as management's first-line representatives, they must know how to motivate people, how to energize the workers into a coherent and cheerful group of effective and cost-conscious producers.

While Figure 1 stops here, there are other cost reduction techniques; some of these do not fall neatly into the four slots discussed just now. Cutting across all of them, for instance, are influences from the outside which have a bearing on curtailment of waste, such as the prevailing economic climate, government regulations and other factors which are often entirely out of range for an individual company management.

Fully within their reach, however, are management's own techniques and methods, such as sound organization, progressive managerial philosophy and planning—to mention just a couple; all of them have beneficial results of which reduced cost is but one. Perhaps best in keeping with the spirit of the American free enterprise system is the simple recognition that cost can be curtailed not only by slashing expenses; it can be brought down also by raising sales so that the existing expense burden is distributed over a larger business volume, thus again reducing unit cost.

What all these (and other) techniques can do, is summed up in the recommendations of the cost reduction program which thus reflects all the control work done so far both in the cost finding as well as in the appraisal stage. Its caliber determines how effective the results of these twin review tasks will be when action is taken on the basis of the suggestions in the cost reduction program.

MANAGERIAL ACTION

This whole retinue of review activities discussed up to now has one objective: to facilitate action by permitting it to be determined on the strength of facts rather than to find it initiated on the quicksands of whim and opinion. Even after facts have been collected, evaluated and summarized in the conclusions of the cost reduction program, it is of the utmost importance for management to make certain that they are put to work, not put to rest in a file drawer.

There are various ways in which these conclusions can be made a reality. Which one is chosen, depends primarily upon the organization of the particular company whose cost—or other—control is involved.

The simplest arrangement would leave the problems of review directly with the man who is in charge of the operations the costs of which are to be scrutinized. Many considerations, such as special knowledge, effective work distribution, etc., suggest that a separate group be entrusted with such a task; it would turn its work over to the operating people when the cost finding and cost appraisal activities are completed and summarized in the cost reduction program. Then the line officials would put the recommendations into effect.

PLANNING AND REVIEW

Ever more frequently, however, still another specialization has taken place in progressive businesses which do not only separate the review work from operations but split all planning tasks off similarly. Under such a setup, planning and review are often bracketed together because in this manner, one strengthens the other and both together can serve operating management most effectively.[1]

This larger function is concerned not only with costs but with all other aspects of managerial interest, such as quantity, quality, time, etc., as well. It is often called "management control" or "management service."[2] Since costs have been shown as one of the key ingredients to management's success, the planning and control of costs has become one of the cornerstones of management service.

In companies which are organized under this concept, the findings from the review work are fed to a planning

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[1] For details, please refer to Alex W. Rathe, "Management Control," March, 1950, issue of *Advanced Management.*

[2] The term "Management Service" in connection with these activities was coined by Walter B. Schaffir in an as yet unpublished paper.

group which incorporates them with other preparations for the next operating period. The operating people thus find the execution of all the plans—including the cost reduction program—as their major responsibility. Figure 2 illustrates a typical control cycle.

Differences in organizational structure and spirit account for many of the differences in the meaning of the term "control," which were touched upon at the outset. If one and the same group is involved in review and action, "control" is much more synonymous with "correction." If two groups divide the tasks of planning and action as well as review among each other, "control" must stress "cooperation" ever more. In this sense, cost control is then properly defined as assistance to operating managers with the function to help them improve the cost aspects of their management.

Whether control findings go directly to the line officials or reach them via the planning people, cooperation between all these groups is overridingly significant. This is so because the line executives—and only they—can give life to plans and programs by using these ideas in their daily work. No cost reduction or any other plans will ever be successful if they are put into operation hesitatingly.

Their usefulness will be spelled out in the cost (and other) facts which are gathered during the next period; and such compilation starts a new cycle of (cost) control.

PROGRAM MUST BE SOLD

This means that the cost reduction program or any other plans must be *sold* in every detail. Better: they should be developed and offered in such a manner that the operating men want to *buy*. Here is the greatest pitfall for many planning and control systems. This human side usually offers heavy obstacles which are generally much harder to solve than the technical aspects.

Suffice it then to sum up merely by stating that the degree of cooperation in planning and control is a direct measure of managerial expertness and maturity of the entire organization.

MANAGEMENT'S OBLIGATION

We have followed cost control through two of its major links:

- In its review tasks, we first visited very briefly the Cost Finding stage. This is the Cost Accountant's realm where events are recorded and figures collected on how well actual operations jibe with the targets which may have been set for them. These data form the basis for the predominantly engineering work in the second, the Cost Appraisal, phase.
- Here, the figures are analyzed and evaluated against the prevailing circumstances; recommendations are assembled in the cost reduction program which describes how future plans can be improved by the experiences of the present and past as they are recorded in the Cost Finding stage. This is the arena of some of the finest triumphs of engineering knowledge in the service of management. It is also a field which is bound to witness ever stronger participation from other sources of knowledge.
- And we have observed, although from very high altitude, how the recommendations of the cost reduction program are put into action. They are placed at the disposal of the operating executives, either directly or after having been incorporated with other preparatory work by the planning group; the usefulness of cost cutting plans is tested in the crucibles of daily operations; their ultimate result is reflected in the cost records of the next cycle.
- While this paper is concerned with the control of just one element, that of cost, other components of managerial concern follow the

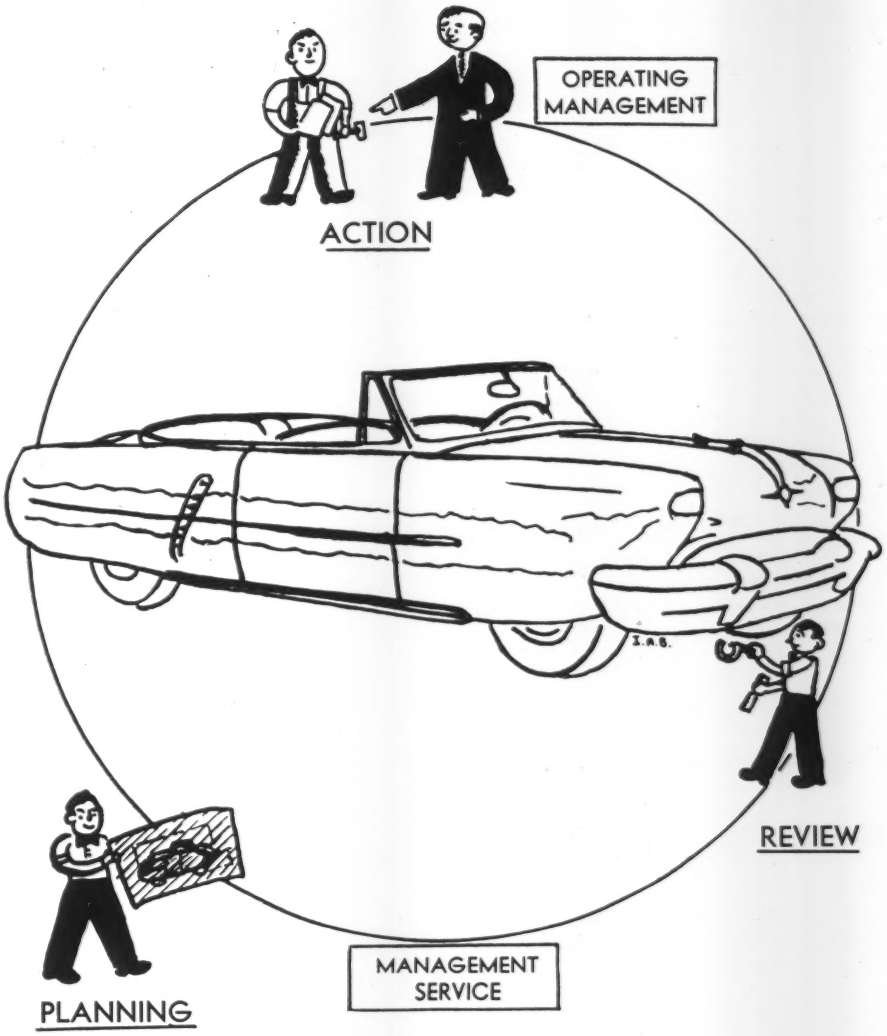

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FIGURE 2—A typical "Control" cycle.